איגוד רופאי העיניים בישראל
ISRAELI OPHTHALMOLOGICAL SOCIETY

The 6th Annual Congress of
The Israeli Ophthalmological Society (IOS)

12-13 June 2018 | David Intercontinental Hotel, Tel Aviv

Abstract Booklet

Congress Secretariat

MEDICAL Expo
Sharing Medical Knowledge

Welcome Note

It is our pleasure to invite you to participate in **The Sixth Annual Congress of the Israeli Ophthalmological Society (IOS)**, which will take place on 12-13 June 2018, at the David Intercontinental Hotel in Tel-Aviv, Israel.

On June 2017 we held the 5th Annual Congress of the IOS which turned out to be a great success, being one of the largest ophthalmology meetings ever held in Israel with over 1000 participants, including over 550 ophthalmologists. This meeting was a platform for lectures by ophthalmologists from all over the country, from academic centers and the community, and included discussions and update lectures in all subspecialty areas and also housed one of the largest ophthalmic-industry exhibitions in Israel.

Alongside the scientific/research presentations, the upcoming meeting will include update lectures in all sub-specialties of ophthalmology, clinical case presentations and expert discussions, with world renowned guest lecturers and special sessions. This year will include an "Ophthalmology of Tomorrow" session, in which promising new technologies, inventions and start-ups in ophthalmology will be presented, and an "I can't believe it worked" session, in which fascinating patient cases that received unique therapies or unusual surgeries. Additionally, a "Rapid Fire" session will include brief presentations of fascinating cases from all disciplines of ophthalmology.

There will also be an emphasis on discussion and audience questions to the lectures.

Last year we had a very successful French-Israeli Meeting and this year we will have the Russian-Israeli symposium with leading experts representing the two national societies.

We will also join forces again with all of our professional colleagues, and include dedicated sessions for: residents, optometrists, ophthalmic nurses, orthoptists, photographers, technicians and medical secretaries.

The conference will again house the largest ophthalmology industry exhibition in Israel, including world leading ophthalmology companies as well as Israeli leading firms in our field, all of which contribute year-round in developing and educating ophthalmology in Israel.

The annual conference is the pinnacle of the IOS activities, and one of the largest ophthalmology meetings is Israel. We encourage all hospital and community ophthalmologists to take an active role in this important meeting, and submit abstracts for presentation of research, case presentations and topics for discussion.

Please enter the IOS meeting website for registration, abstract submission, the meeting program and updates up to the meeting as well as after it.

The website also includes all information from the 2017 IOS meeting, including a picture gallery from the meeting and the exhibition.

We are happily available regarding any issue or question related to your participation in the annual meeting.

We wish you a fruitful and insightful meeting and a great time in the exhilarating city of Tel-Aviv

Prof. Dan D. Gaton, M.D.
President, Israeli Ophthalmological Society

Prof. Elad Moisseiev, M.D.
Head, Congress Committee

Scientific Reviewers & Heads Of Sub-Specialty Societies And Sessions

All contents of the presentations are scientifically evaluated in order to properly contribute for the benefit of all participants of the conference.

We would like to acknowledge the scientific reviewers & Heads of Sub-Specialty Societies and Sessions:

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Dr. David Landau, *M.D., MBA, Head, Community Ophthalmic Services, Clalit Health Services, Jerusalem*
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Dr. Fani Segev, *M.D., Director of Corneal Service, Department of Ophthalmology, Meir Medical Center, Kfar Saba*

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Dr. Daniel Rappoport, *M.D. Neuro-Ophthalmology Service, Kaplan Medical Center, Rehovot*

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Dr. Orit Vidne-Hai, *M.D., Specialist in Retina, Tel-Hashomer Medical Center, Maccabi Health Services*
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Cataract
Dr. Nirit Bourla, *M.D., Head, Cataract Service, the Goldschleger Eye Institute, Sheba Medical Center, Tel-Hashomer*
Prof. Guy Kleinmann, *M.D., Head, Cataract Service, Department of Ophthalmology, Kaplan Medical Center, Rehovot*

Dr. Nadav Belfair, *M.D., Director of Cataract Service, Soroka University Medical Center, Beer-Sheva*

Refractive Surgery
Prof. Avi Solomon, *M.D., Head, Cornea Service, Department of Ophthalmology, Hadassah-Hebrew University Medical Center, Jerusalem*
Dr. Elia Levinger, *M.D., Director of Cataract Service, Tel Aviv Sourasky Medical Center, Einaim institute*
Prof. Irit Barequet, *M.D., MHA, Head of Cornea Division, Goldschleger Eye Institutes, Sheba Medical Center, Tel-Hashomer*

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Dr. Shahar Frenkel, *M.D., PhD, Oculoplastics & Ocular Tumor Service, Hadassah-Hebrew University Medical Center, Jerusalem*

Glaucoma
Dr. Yaniv Barkana, *M.D., Chair, Israeli Glaucoma Society, Private Practice*
Dr. Alon Skaat, *M.D., Senior Attending Ophthalmologist, the Goldschleger Eye Institute, Sheba Medical Center, Tel-Hashomer*
Prof. Michael Waisbourd, *M.D., Director of Glaucoma Research Center, Tel Aviv Sourasky Medical Center*
Dr. Mordechai Goldenfeld, M.D., *The Sam Rothberg Glaucoma Center, Goldschleger Eye Institute, Sheba medical Center, Tel-Hashomer and Maccabi Health Services*

I Can't Believe it Worked!?
Dr. Eitan Livny, *M.D., Cornea Consultant, Rabin Medical Center, Petah Tikva*
Dr. Alon Skaat, *M.D., Senior Attending Ophthalmologist, the Goldschleger Eye Institute, Sheba Medical Center, Tel-Hashomer*
Prof. Elad Moisseiev, *M.D., Specialist in Retina, Tel Aviv Sourasky Medical Center*

RAPID FIRE
Dr. Vicktoria (Vicky) Vishnevskia-Dai, *M.D., Director, Ocular Oncology, the Goldschleger Eye Institute, Sheba Medical Center, Tel-Hashomer*
Dr. Shiri Soudry, *M.D., Vitreo-Retina Specialist, Rambam Medical Center, Haifa*
Dr. David Varssano, *M.D., Director, Anterior Segment and Cornea Unit, Director, Tel Aviv Sourasly Medical Center*

Ophthalmology of Tomorrow
Dr. Noa Geffen, *M.D., Head, Glaucoma Service, Beilinson Medical Center, Kfar Saba*
Dr. Nurit Mathalone, *M.D., Head, Retina Service, Carmel Medical Center, Haifa*

Nurses
Dr. Nurit Mathalone, *M.D., Head, Retina Service, Carmel Medical Center, Haifa*

Technicians and Photographers
Dr. Iris Moroz, *M.D., Head of the Ophthalmic Imaging Unit at Goldschleger Eye Institute, Sheba Medical Center, Tel-Hashomer*

Russian – Israeli Meeting
Dr. Boris Knyazer, *M.D., Director of the Ophthalmology Clinics, Soroka University Medical Center, Beer-Sheva*
Prof. Irit Barequet, *M.D., Head of Cornea Division, Goldschleger Eye Institutes, Sheba Medical Center, Tel-Hashomer*

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Dr. Tova Ma-Naim, *M.D., Private Practice, Ramla*

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Dr. Tamar Levi-Vineberg, *M.D., Ophthalmologist, Shaare Zedek Medical Center, Jerusalem*

Guest Speakers

Prof. Jeffrey Liebmann, *Columbia University, New York, USA*

Prof. Jacob Schachter, *Ella Lemelbaum Institute of Immuno-Oncology, Sheba Medical Center, Tel-Hashomer, Israel*

Prof. Mikhail Kataev, *Head of the Department of Plastic Surgery S. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia*

Dr. Andrey Yarovoy, *Head of the Ocular Oncology and Radiology Department, S. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia*

Dr. Andrey Kachanov, *Refractive Surgery Department, The Academician IRTC S.N. Fyodorov "Eye Microsurgery" St. Petersburg, Russia*

Dr. Natalia Maychuk, *Refractive Surgery Department, S. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia*

Dr. Dmitriy Maychuk, *Head of Therapeutic Department, S. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia*

Tuesday, 12 June, 2018

Plenary (Hall 1)

07:00 Registration
07:00 Workshop (Novartis Hall)
07:50 Opening Remarks
08:00 RAPID FIRE - Clinical Cases
09:00 Cornea & Contact Lenses
10:10 Coffee Break and Visit the Exhibition
10:30 Glaucoma Including Guest Speaker
12:00 Chairman's Greetings and Update, Awards and Photography Contest
12:30 Lunch Break and Visit the Exhibition
13:15 Retina (Medical and Surgical)
14:45 Coffee Break and Visit the Exhibition
15:15 Neuro-Ophthalmology
16:15 Oculoplastics
17:15 Closing

Hall 2

07:00 Registration
07:00 Workshop (Novartis Hall)
09:00 Medical Secretaries
10:10 Coffee Break and Visit the Exhibition
10:40 Nurses
12:00 Chairman's Greetings and Update, Awards and Photography Contest (Plenary Hall 1)
12:30 Lunch Break and Visit the Exhibition
13:15 Residents in Ophthalmology
14:45 Coffee Break and Visit the Exhibition
15:00 Community Ophthalmology - Inaugural Meeting
16:00 Glaucoma Specialists Meeting With Prof. Liebmann and Clinical Case Presentations
17:30 Closing

Wednesday, 13 June, 2018

Plenary (Hall 1)

07:00 Registration
08:00 Workshop (Allergan Hall)
08:00 Refractive Surgery
09:00 Ophthalmology of Tommorow
10:00 Coffee Break and Visit the Exhibition
10:30 Ocular Oncology - Inaugural Meeting
11:00 Cataract
12:30 Lunch Break and Visit the Exhibition
13:15 Strabismus and Pediatric Ophthalmology
14:15 Uveitis
15:15 Coffee Break and Visit the Exhibition
15:45 I Can't Believe It Worked!
17:00 Closing

Hall 2

07:00 Registration
08:00 Workshop (Allergan Hall)
08:00 Optometrists
09:00 Ophthalmology of Tommorow (Plenary Hall 1)
10:00 Coffee Break and Visit the Exhibition
10:30 International Russian-Israeli Meeting
12:30 Lunch Break and Visit the Exhibition
13:15 Technicians and Photographers
14:15 Orthoptists
15:15 Coffee Break and Visit the Exhibition
15:45 I Can't Believe It Worked! (Plenary Hall 1)
17:00 Closing

RAPID FIRE

A Case of Apperceptive Prosopagnosia in a 40 Year-Old Woman With Moya-Moya Disease

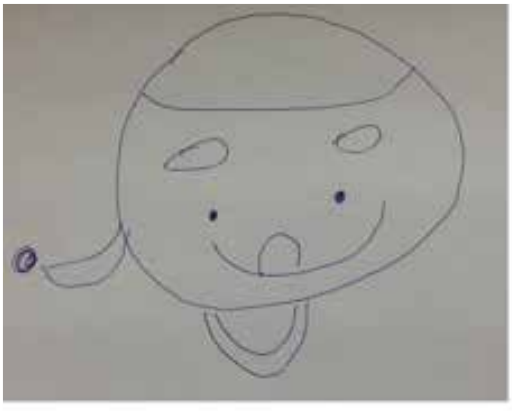
Ron Kaufman, Joshua Kruger, Ophthalmology, Hadassah-Hebrew University Medical Center, Israel

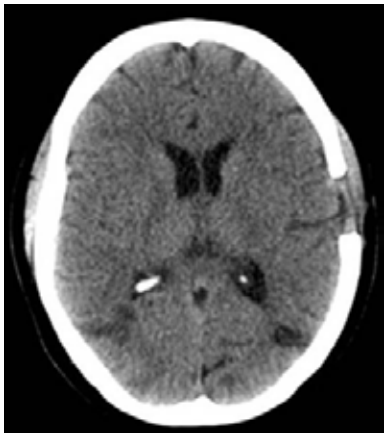
Background: Higher cortical visual function disorders are visual manifestations of damage to specific occipital cortex zones or their intervening white matter. Most patients' complaints are vague and easily overlooked. A high level of suspicion is needed in cases of homonymous visual field defects.

Methods: Retrospective review of clinical reports, and case report.

Result: A 40-year-old female, with Moyamoya disease, presented to the neuro-ophthalmology clinic at Hadassah Medical Center complaining of bilateral blurred central vision. Visual acuities, slit lamp assessment, and pupil exams were essentially normal. Visual field testing showed a left homonymous hemianopsia. After further questioning, it became apparent that her complaint was specifically related to people`s faces, which appeared abnormal and disorganized. She was unable to recognize familiar faces, including her own. On testing, the patient did not recognize famous faces such as Benjamin Netanyahu or President Barak Obama. Face copying tasks demonstrated disorganized features. Object recognition was normal (e.g. inanimate objects, animals). Review of her MRI demonstrated a right-sided stroke involving the occipital face area. The findings were consistent with apperceptive prosopagnosia.

Conclusion: The areas of the brain through which the retrochiasmal optic pathways pass, are involved in higher aspects of visual processing. In cases of homonymous hemianopsias, the clinician should assess for such deficits, as they may be the real cause of the patient`s symptoms.





Retinal Astrocytoma Regression in Tuberous Sclerosis Patients Treated With Everolimus

Anat Bachar Zipori[1], Nasrin Tehrani[2,3], Asim Ali[2,3]
1. Ophthalmology Department, Tel Aviv Sourasky Medical Center, Israel
2. Department of Ophthalmology and Vision Sciences, Hospital for Sick Children, Canada
3. Faculty of Medicine, University of Toronto, Canada

Everolimus is an inhibitor of the mammalian target of rapamycin (mTOR) that has been approved by the US Food and Drug Administration (FDA) for the treatment of subependymal giant cell astrocytoma (SEGA) in tuberous sclerosis complex (TSC) patients. Retinal hamartomas, which are one of the major diagnostic features of TSC, tend to remain stable or gradually progress in the natural history of the disease. In this report we present four eyes from two patients meeting diagnostic criteria for TSC. Both were placed on everolimus treatment for SEGA. Fundus photos and spectral domain OCT images demonstrated regression of previously documented multiple retinal hamartomas in all four eyes. This is the first report to show a reduction in retinal hamartoma size and number in TSC patients using everolimus for SEGA.

Coat's-Like Response With Vitremacular Traction in a Patient With X-linked Retinitis Pigmentosa

Elad Moisseiev, Ophthalmology, Tel Aviv Sourasky Medical Center, Israel

Introduction: Retinitis Pigmentosa (RP) is the most common hereditary retinal dystrophy, commonly causing nyctalopia and progressive peripheral visual loss. Rarely, RP may be complicated by a Coat's-like response which includes ischemia and exudative changes.

Methods: A case-report of a 48 year old man, with known X-linked RP and constricted visual fields, which presented with a reduction in visual acuity to 6/30 in his right eye. An area of exudation was noted in the midperiphery, with non-perfusion and light-bulb aneurysms demonstrated on fluorescein angiography and consistent with Coat's vasculopathy. The condition was further complicated by vitreomacular traction, demonstrated by optical coherence tomography, which caused cystoid macular edema (CME) and the reduced vision.

Results: Treatment with topical carbonic anhydrase inhibitors and 3 bevacizumab injections did not improve the CME, and the patient was referred to vitrectomy with intense laser on the area of Coat's-like response. Following surgery, the CME resolved and vision improved to 6/15.

Conclusions: Coat's like response is a rare possible complication of RP. Surgical intervention in such cases is very rare. This is the first report of a case in which peripheral Coat's caused significant vitreomacular traction. The relevant literature will be reviewed.

Swept Source OCT En-Face and Angiographic Findings in Preeclampsia

Yoel Hanhart[1], Yishay Weill[1], Tehila Avitan[2], Sorina Grisaru-Granovsky[2], David Zadok[1]
1. Ophthalmology, Shaare Zedek, Medical Center, Israel
2. Obstetrics and Gynecology, Shaare Zedek, Medical Center, Israel

Background: Preeclampsia is a common hypertensive disorder in pregnancy, with ocular complications. OCT (optical coherence tomography) angiography is safe in pregnancy and allows microvascular assessment of the retina and choroid. We aim to determine what are the effects of preeclampsia on the retinal vasculature.

Methods: Swept source OCT (DRI OCT-1; Topcon Corp., Tokyo, Japan) was used over the whole monitoring period. We performed en-face as well as angiographic analysis. We followed a primigravida 40-year-old woman who developped severe preeclampsia, from week 29 to three weeks after delivery at week 33.

Results: As retinal and choroidal changes were clinically observed, OCT allowed visualization of the outer retinal changes over time. The deep retinal vasculature and tissue were maximally altered at the paroxysm of the preeclampsia, just prior to delivery. The vasculopathy notably affected the perifoveal area but was also appreciable as a widespread modification of the vascular texture. En face analysis revealed extensive outer retinal changes.

Preeclampsia retinopathy can selectively affect the deep retinal plexus. OCT angiography could be the modality of choice for assessing the ocular changes accompanying hypertensive disorders in pregnancy.

Late Capsular Block Syndrome - A Very Late Surprise After Cataract Surgery

Irit Barequet, Iris Moroz, Joseph Moisseiev, Goldschleger Eye Institute, Sheba Medical Center, Tel-Hashomer, Israel

Background: Late capsular block syndrome is a rare complication that may occur months to years after an uneventful cataract surgery. The purpose of the current project is to describe 3 cases of late capsular block syndrome.

Methods: Three patients were evaluated with complains of decreased vision in one eye. The previous ocular history included an uneventful cataract operation with a PCIOL in the capsular bag performed 4-6 years earlier. On examination the visual acuity was decreased as compared to previous records and an increased myopia was noted. Slit lamp examination revealed a space filled with turbid fluid captured between the intraocular lens and the posterior capsule. Anterior segment OCT supported the clinical findings showing a doubling of the volume of the bag, filled with the turbid material and the intraocular lens

Results: Nd:YAG posterior capsulotomy was performed and the milky fluid self-drained in the vitreous cavity leaving the clear PCIOL in place. The visual acuity improved over the next few days and the myopia was reduced to the earlier refraction.

Conclusion: Late-onset capsular block syndrome can present long time after uneventful cataract surgery and may cause significant symptoms. Awareness to this possibility even many years after uneventful cataract surgery is important in guiding te evaluation and treatment.

Acute Proptosis and Ophthalmoplegia

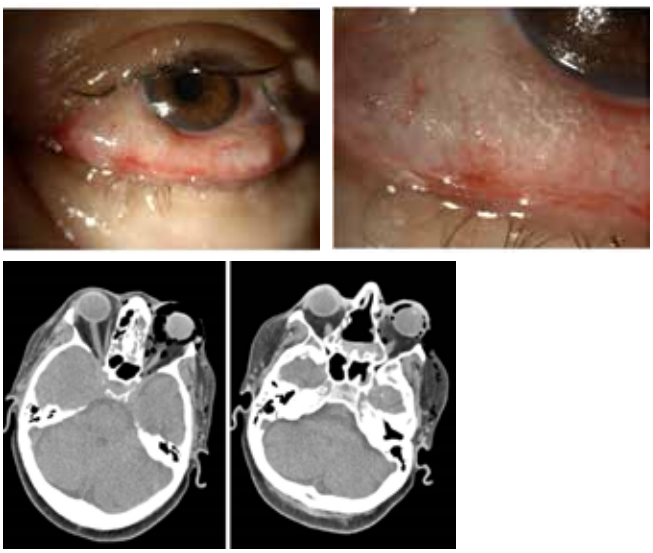
Michal Blau-Most, Shuky Almog, Fani Segev, Ophthalmology, Meir Medical Center, Kfar Saba, Israel

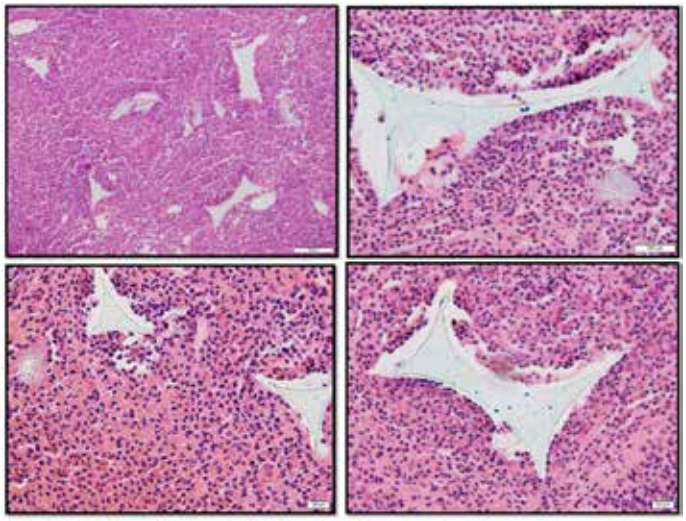
Background: An unusual case of a patient who presented with acute proptosis and ophthalmoplegia in her left eye.

Methods: A clinical case report of a 46 years old diabetic woman. Visual acuity, clinical examination, CT and pathology specimens from the nose were obtained.

Results: At presentation a clinical examination revealed proptosis, ophthalmoplegia, positive RAPD, eyelid edema, conjunctival chemosis (Figure 1) and intraocular pressure of 22 mm Hg. We performed an urgent nose biopsy to exclude mucormycosis in the diabetic patient with suspected finding in rhinoscopy. In revised anamnesis she described severe chronic sinusitis, and that the proptosis occurred suddenly after wiping strongly her nose. We performed a CT scan which revealed proptosis, numerous intraorbital, intraconal and periorbital air bubbles (Figure 2) and a complete perforation of the nasal septum, mimicking Granulomatosis with polyangitis or Churg-Strauss syndrome. While waiting for confirmatory pathology we found an unexpected inherent foreign substance in 2 out of 3 pathology specimens obtained, and there was no geographic or fibrinoid necrosis typical of Granulomatosis with polyangitis (Figure 3). After revising the anamnesis again, due to the new pathology results, she confirmed sniffing Methylphenidate (Ritalin).

Conclusion: Nowadays, nasal Methylphenidate (Ritalin) abuse among youngsters and adults is gaining increased popularity. We should bear in mind the possibility of altered anatomy, atrophy and necrosis creating a pathologic connection between the nose and eyes as a consequence of Methylphenidate (Ritalin) abuse, in the same fashion Cocaine used to cause, when other conventional explanations don`t fit with the clinical course.





Surgical Treatment of Macular Schisis in a Case of Papillorenal Syndrome

Ori Berliner, Ruth Siegel, Department of Ophthalmology, Rabin Medical Center, Petah Tikva, Israel

Background: Papillorenal syndrome is a rare, autosomal dominant disease due to a mutation in the PAX2 gene affecting mainly the ocular and renal systems, but also the auditory system, brain, spinal cord and genital tract.

Ophthalmologic manifestations may present, among others, as optic disc anomalies.

Fluid may accumulate within or beneath the retina in the peripapillary zone, the origin of which is controversial.

2 suspected origins of the peripapillary fluid are:
• CSF extending through a defect in the optic disc
• Vitreal fluid

In an event of fluid extension to the macular region decreased vision may ensue.

Method: A case report of successful surgical treatment of macular schisis in a patient with papillorenal syndrome AKA renal coloboma syndrome.

Results: A 23 years old patient presenting with bilateral "morning glory" optic disc configuration, complicated by intra retinal fluid in the macular region, suffering decreased vision underwent Pars Plana Vitrectomy, ERM peeling and gas tamponade in an attempt to restore macular anatomy.

The surgery resulted in successful removal of intra-retinal fluids and improvement of vision.

Conclusion: Surgical treatment of intra-retinal, sub-macular fluids in patients with optic disc anomalies is a viable option and should be considered in selected patients affected by visual decline under these circumstances.

Vertical Diplopia in A Young Man Leading to an Unexpected Diagnosis

Karin Herscu, Inbal Man Peles, Nitza Cohen Goldenberg, Ophthalmology, Bnai Zion Medical Center, Haifa, Israel

Background: Forth nerve palsy cuases weakness of the superior oblique muscle, which manifests as vertical diplopia. The most common cause of forth nerve palsy in young men is head trauma. Other possible causes include neurosurgical procedures, infectious causes such as Herpes Zoster, vascular causes such as CVA and malignancies.

Patient presentation: A 38 years old male presented to the emergency department with blurred vision that began one day prior to his admission. The patient had no previous ocular or medical history. Eye exam revealed binocular vertical diplopia with right hypertroia that worsened on left gaze and head tilt to the right, he also suffered from tenderness at the right trochlea. Trochleitis was clinically and radiologically suspected . Indomed was initiated.

Patient complained of worsening of his diplopia, and diagnosis was shifted into forth nerve palsy. MRI demonstrated a demyealinative disease with multiple periventricular plaques including one in the rostral midbrain. The patient was diagnosed with Multiple sclerosis.

Conclusions: We describe 4th nerve palsy as the presenting symptom of Multiple Sclerosis in a male patient.

Multiple sclerosis can have countless presenting symptoms and signs, not all patients present with the common symptoms and signs. Demographics such as gender and age play a role when creating our differential diagnosis and workup for patients, but it should a be kept in mind that demographics are mainly based on statistics and that the differential diagnosis should be extended in selected patients regardless of their age and gender.

The ability to reconsider the working diagnosis and to extend the differential diagnosis plays a key part in understanding complicated patients

Multiple Myeloma With Periorbital and Orbital Involvement: Case-Report

Michael Yulish, Otzem Chassid, Ophthalmology, Ziv Medical Center, Tzfat, Israel

72 years old myltiple myeloma patient suffering rapid progressive left periorbital swelling and pain. CT showed big lesion and lateral orbital wall destruction.
Biopsy conclusion: Multiple Myeloma/Plasmacytoma.
The patient passed chemotherapy and local irradiation with lesion regression.

Bilateral Transient Myopia With Sulfasalazine Treatment

Tal Paz[1], Daniel Rappoport[1,2], Hana Leiba[1,2], Assaf Hilely[1,2]
1. Ophthalmology Department, Kaplan Medical Center, Rehovot, Israel
2. Medical School, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

Background: Sulfasalazine is an aminosalicylate which is used to treat rheumatic arthritis and ulcerative colitis. There are relatively few reports on ocular side effects of this drug, and it is generally considered to be safe and well tolerated. Although there are several reports on Sulfonamide medications (e.g. Topiramate) induced myopia, this transient side effect has been, to the best of our knowledge, reported only once due to Sulfasalazine treatment.

Methods: A retrospective case report.

Results: A 41 year-old woman with a known ulcerative colitis presented to the emergency room with acute bilateral visual loss. Her uncorrected visual acuity (UCVA) was counting figures (CF) in both eyes (BE), and her best corrected visual acuity (BCVA) was 6/15 in her right eye (RE) with refraction of -4.75, and BCVA of 6/12 in her left eye (LE) with refraction of -4.50. Ocular exam was normal, except for myopia of -4 diopters in BE. Past ocular medical history was unremarkable, and her UCVA has always been excellent without any known refractive error, according to her. The patient was started on a new treatment with Sulfasalazine two weeks prior to her admission. Measured axial length in her RE was 21.89 mm and in her LE 22.26 mm, with normal intraocular pressures. The patient was advised to stop the medication, and her vision improved within 4 days to BCVA of 6/7.5 with refraction of -0.75 in her RE and BCVA of 6/6 with refraction of -0.50 in her LE. No change was observed in repeated axial length measurements.

Conclusion: Transient myopia induced by Sulfasalazine is very rare. A few mechanisms were suggested, and will be discussed in more detail. Clinicians should be aware of this side effect, and prompt recognition may lead to the appropriate management.

Challenging Descemet Membrane Endothelial Keratoplasty (DMEK) in an Aphakic Eye

Iris Deitch[1], **Irit Bahar**[1,2], **Yoav Nahum**[1,2], **Eitan Livny**[1,2]
1. Department of Ophthalmology, Rabin Medical Center, Israel
2. Sackler School of Medicine, Tel Aviv University, Israel

Purpose: To describe a case of aphakia in a patient with Marfan syndrome that was successfully treated with Descemet membrane endothelial keratoplasty (DMEK).

Methods: Descriptive case report.

Results: A 40-year-old woman with a history of aphakia due to Marfan syndrome presented with bullous keratopathy in the left eye. Surgical treatment with DMEK was determined to be the best option, despite the expected challenges. We decided preoperatively not to suture an intraoperative lens in order to avoid severe anisometropia with the right aphakic eye. A detailed description of the complicated operative procedure is presented. At the end of surgery, SF6 gas was used to lift the graft to the host stroma. After about one hour, the entire gas bubble dislocated into the vitreous cavity, and the graft, now lacking support, immediately detached and remained free-floating in the anterior chamber. The patient was reoperated the same day. The graft was unfolded again and reattached to the host stroma. On evaluation the following day, incomplete attachment of the graft was noted, and rebubbling was performed. One week later, the cornea cleared. Best corrected visual acuity was 6/7.5 with an endothelial cell count of 1650 cells/mm.

Conclusions: Although DMEK is a demanding procedure in patients with aphakia, it appears to be a feasible option that provides unprecedented visual results with rapid rehabilitation. To the best of our knowledge, this is the first description of DMEK in an aphakic eye.

Spontaneous Scleral Perforation of an Oversized Anterior Chamber Intraocular Lens

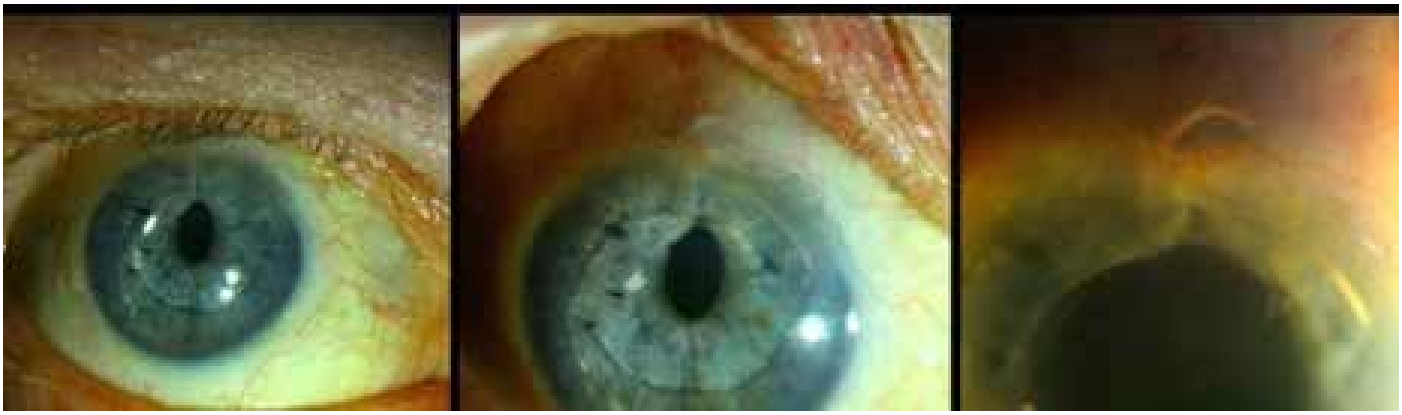
Oriel Spierer, Ophthalmology, Wolfson Medical Center, Holon, Israel

Background: The use of anterior chamber intraocular lens (AC IOL) in cataract surgery is uncommon these days, due to improvement in surgical techniques and intraocular lens design and materials. AC IOL expulsion or exposure is rare, and usually the result of trauma. We report an asymptomatic patient with spontaneous scleral perforation due to an oversized AC IOL.

Methods: A retrospective case report.

Results: A routine eye examination of a 69-year-old man revealed a scleral perforation of one of the haptics of an AC IOL which was implanted many years ago. The patient was asymptomatic with good visual acuity. Past ocular history was negative for any trauma or eye rubbing. The white-to-white diameter and the Visante anterior segment optical coherence tomography measurements showed that the AC IOL, which was vertically-aligned, was oversized. The patient underwent an intraocular lens exhange.

Conclusion: AC IOL proper sizing and positioning is crucial to prevent complications including scleral perforation. In a patient with zonular instability, measuring the anterior chamber length with an anterior segment optical coherence tomography prior to the surgery should be considered.



Melanoma of the Ciliary Body, the Hidden Tumor

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Background: Uveal melanoma is the most common primary malignancy of the eye in Caucasian adults. Uveal melanoma frequently arises from the choroid or the iris. Ciliary body melanoma is a rare, if not exceptional subtype of uveal melanoma. Ciliary body melanomas are usually asymptomatic because of their location, behind the iris. In rare cases tumors extend directly through the sclera, producing a dark epibulbar mass with dilated sentile vessels, it could also extend 360 degrees around the ciliary body (called ring melanoma).

Patient presentation: We present a case of a 36 year old male patient who presented to the emergency department due to blurred vision that began three weeks prior to his admission.

The patient had no previous ocular or medical history.

Thorough medical history was taken; it was revealed that he underwent peripheral iridotomy because of a narrow anterior chamber in the past.

Ocular examination including fundus examination demonstarted a large mass behind the iris, compatible with ciliary body melanoma

The patient had extensive work up and no metastasis was found. The patient underwent enucleation of the eye

Conclusion: Ciliary body melanoma is a rare tumor that grows insidiously, hidden behind the iris, with minimal symptoms.

It should be kept in mind that a narrow angle could be secondary to a space occupying lesion. Life threatening conditions must be ruled out.

Acute Horizontal Gaze Palsy in an Eight Month Old Girl

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Background: Lesions of the pons may cause horizontal gaze palsy due to abducens nucleus or paramedian pontine reticular formation (PPRF) involvement. Other manifestations may be internuclear ophthalmoplegia (INO), abducens nerve palsy with or without facial nerve palsy or any combination of these.

Pontine lesions may be caused by ischemia, hemorrhage, demyelinating or inflammatory diseases, or tumors.

We present a case of a young baby with acute horizontal gaze palsy.

Methods: Case report.

Results: An 8- month- old girl, otherwise healthy, presented to the emergency room with an acute left gaze deviation and a right head turn. No abduction movement was made by her right eye, and some adduction was observed in her left eye, especially in response to a forced head turn (Vestibulo-ocular reflex). She also had a mild right peripheral facial palsy. Magnetic resonance imaging (MRI) of the brain revealed a small restrictive lesion, consistent with an acute stroke, in the right pontine tegmentum. Her blood work tested positive for Anti-phospholipid antibodies. On follow up two weeks later, some improvement was observed. The head turn subsided, and the left eye was straight in primary gaze with full horizontal versions. There was still very minimal, if any, abduction her right eye.

Conclusions: The possible area of injury includes the right PPRF, abducens nerve or nucleus. The exact location will be discussed.

Vitreoretinal Leukemia in a Child

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A 3 years old child was admitted to our hospital with recurrent falls and known acute lymphocytic leukemia (ALL) on remission.

On her ocular examination massive optic nerve infiltration with serous retinal detachment OD and severe vitreous opacifications on the LE were observed.

Biopsy proven vitreoretinal leukemia was diagnosed.

The child was treated locally with reported intravitreal Methotrexate injections in addition to systemic and and intrathecal chemotherapy.

Full remission was achieved. On 788 months follow up the patient is alive and well.

Congenital Superior Oblique Palsy Manifested Secondary to Nutritional Optic Neuropathy

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History: A 39 year male, claiming to be healthy in general, presented with a two year history of progressively worsening vertical diplopia. He denied any other neurological symptoms.

Exam findings: The exam revealed large right hypertropia with a positive 3 step test. Visual acuities were 0.3 for the right eye with no pinhole improvement, and 0.5 for the left eye with no pinhole improvement. There was bilateral dyschromatopsia and an automated visual field showed a severe generalized reduction in sensitivity for both eyes. The globes appeared normal, including the optic nerve heads.

Investigations: OCT of the macula and RNFL was unremarkable. CT of the orbits revealed a right superior oblique of small caliber. Blood work demonstrated deficiencies in folate, thiamine and copper. ERG testing showed no evidence of vitamin A deficiency. On further questioning, the patient admitted to a history of bariatric surgery 5 years prior with failure to take any nutritional supplements.

Treatment: Within 6 months of initiating nutritional supplements, the vision in each eye markedly improved, and the diplopia resolved. OCT showed bilateral slight thinning of the RNFL in the interval.

Conclusion: The nutritional deficiency caused a bilateral optic neuropathy and the resulting vision loss precipitated a manifestation of a congenital superior oblique palsy that had previously just been a phoria. The case emphasizes the importance of considering occult sensory etiologies of acquired strabismus.

The Effect of Cataract Surgery Without Dispresive OVD on Corneal Endothelium Cell Density Using Femtosecond Laser-Assisted Cataract Surgery Versus Standard Phacoemulsification

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Background: Dispersive OVDs improve the protection of the corneal endothelium but increase the surgical cost at the same time, which limits its wide use in the public health system. The goal of this study was to compare the effect of femtosecond laser–assisted cataract (FLACS) and conventional phacoemulsification, both without using dispersive OVD on the corneal endothelium cell density.

Methods: A prospective single-center randomized study. Patients with nuclear hardness grade II–III were assigned to FLACS (study group) or conventional phacoemulsification (control group) of their choice. No dispersive OVD was used in any case. Cataract grading and effective phaco time (EPT) were recorded for each patient. Endothelial cell density (ECD) was measured preoperatively and at 1, and 3 months postoperatively. Best corrected visual acuity (BCVA) was evaluated 1 day following surgery and then at 1 week, 1 and 3 months after surgery.

Results: One hundred forty-nine patients (149 eyes) were included. 100 patients underwent FLACS and 49 conventional phacoemulsification . No significant differences were found between groups in cataract grading and EPT. The mean preoperative ECD was 2705.4±233.4 cells/mm2 in the study group and 2631.9±287.3 cells/mm2 in the control group (p=0.1). The mean endothelial cell loss was 12.2% ± 18.1% 1 month postoperatively and 13.5% ± 14.4% (SD) 3 month postoperatively in the study group and 8.9% ± 17.3% and 10.7% ± 19.1%, respectively, in the control group. The rates of cell loss at each time point were not statistically significant different between groups. There was no difference in BCVA at all post-operative time points between groups.

Conclusion: Our study did not find a difference in endothelial cell loss and BCVA following cataract operation without the use of dispersive OVD whether the surgery was performed by

Progression of Keratoconus in Children - 5 Years Follow-Up

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Purpose: To assess stability of keratoconus in children over a period of 5 years.

Design: A retrospective monocentric study was conducted in a tertiary cornea clinic at AssaF Harofeh Medical Center.

Methods: A retrospective case analysis was performed on 80 eyes of 40 patients 18 years or younger, with mild to moderate keratoconus, who underwent CXL in one eye (the more advanced eye at time of diagnosis). As concomitant allergic keratoconjunctivitis and subsequent eye rubbing might have a negative effect on keratoconus progression, all patients were screened and treated for vernal and allergic conjunctivitis. We did stress the importance of refraining from eye rubbing to all patients and their parents before treatment and at follow-up appointments.

Follow-up measurements, for the untreated eye taken up to 5 years after treatment were compared with baseline values. Parameters included uncorrected distance visual acuity (UCDVA), best spectacle-corrected distance visual acuity (BCDVA), manifest refraction, pachymetry and corneal topography

Results: Mean age of patients was 15.6±2.1 years. The mean UCDVA and BCDVA remained stable during 5 years of follow up (p 0.21, p 0.08, respectively).

The mean Kmax and Kavg showed no significant change during all 5 years of follow-up (p 0.18, p 0.25, respectively).

The mean thinnest corneal thickness did not change significantly during all years of follow-up (p 0.78).

Conclusion: According to our study, there is no indication to cross link the fellow eye of children who had CXL for progressive keratoconus in the other eye. These patients should be kept under very close follow-up to look for the earliest signs of progression and upon which, CXL should be promptly offered.

Clinical And Microbial Characteristics Of Pediatric Infectious Keratitis

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Background: Corneal ulcers can result in severe visual impairment in children. The purpose of this study is to report the risk factors, microbiological profile and treatment outcomes of pediatric microbial keratitis.

Methods: A university-based tertiary ophthalmology department retrospective case series between 1992 and 2015 was done. Medical records of 107 pediatric patients (age

Results: Mean age of patients was 13±4.6 years (range 0.2–17 years). The most common associated risk factor was contact lens wear (77.6%), followed by ocular trauma (8.4%). Systemic factors were present in 4.7% of cases. Cultures were taken from 89 patients. A total of 74 organisms were isolated from the 52 corneal scrapings with growth, yielding a 58.4% positivity rate. Seventeen microbial species were identified, with a predominance of Pseudomonas aeruginosa (46.2%), followed by Stenotrophomonas maltophilia (19.2%) and Fusarium (13.5%). Combined fortified antibiotics were the most common treatment (51.4%). Mean follow-up time was 40.6±91.6 weeks (range: 0.3–480 weeks). The mean visual acuity improved from 6/48 to 6/15 (p0.0001). In none of the cases therapeutic penetrating keratoplasty was needed.

Conclusion: In this study, contact lens wear was the most frequent risk factor in infectious keratitis in children. P. aeruginosa was the most common microorganism present in our setting. The majority of the cases responded well to medical management.

The Therapeutic Effect of Accelerated Photoactivated Chromophore Corneal Cross-linking (PACK-CXL) Compare to the Standard Antibiotic Therapy in Infectious Keratitis

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Purpose: To evaluate the therapeutic effect of PACK-CXL on therapy-resistant infectious keratitis (IK) and to compare it to the effect of standard topical antibiotic therapy.

Methods: Retrospective interventional comparative study. We studied 70 eyes of 70 patients who were treated in our university ophthalmology department with IK. Patients were either treated using our standard antimicrobial protocol, or received an additional accelerated PACK-CXL (hypo-osmolaric 0.1% riboflavin solution and UV-A (365nm) irradiance of 30 mW/cm2 for 3 minutes) treatment. The size of the epithelial defect, period until healing, corrected and uncorrected visual acuity were recorded on admission and during the follow- up.

Results: 40 eyes with therapy-resistant IK were treated with PACK-CXL/antimicrobial therapy and 30 eyes with IK were treated with standard antimicrobial therapy (control). The mean infiltrate sizes were similar (3.15±1.29mm in the PACK-CXL group and 3.06±1.13mm in the control group). Therapeutic keratoplasty was performed in 6 (18.8%) patients of the control group and no keratoplasties (0.0%) in the PACK-CXL group ($P<0.001$). The mean time to re-epithelialization was 7±1.5 days in the PACK group and 12 ± 2.6 days ($P< 0.002$) The short follow up period has been found in PACK group 2.6 months vs 4.4 months ($P<0.001$)

Multivariate logistic regression model revealed the PACK-CXL treatment has accelerated effect to healing process in therapy-resistant IK .

Conclusions: This is the first study where has been found a beneficial effect of accelerated PACK-CXL as an additional treatment modality for therapy-resistant IK. The PACK-CXL treatment may halt the infectious process and accelerate healing intra-corneal process and may help avoiding emergency keratoplasty. Further research is needed to better understand the beneficial effect of this new treatment for infective keratitis.

Corneal Collagen Cross-Linking for Keratoconus in Young Patients: Five Years Follow-Up

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Purpose: To report the 5 year-outcome of corneal collagen cross-linking (CXL) for keratoconus (KC) in young patients.

Methods: Retrospective review of files of patients ≤18yrs-old who had CXL for KC (August 2007 to August 2017). Main outcomes were best corrected visual acuity (BCVA in LogMAR) and maximum keratometry (Kmax). We used Dresden protocol with regular or hypotonic riboflavin (UV-X ™ Specifications, IROC, Zurich, Switzerland). Statistical analysis was performed by Wilcoxon Rank Sum Test (Matlab 2013b, The Mathworks Inc, Natick MA).

Results: One hundred and forty two eyes of 105 patients ≤18yrs-old (mean age 15.7±2.1yrs, range: 10-18yrs) had CXL for KC with minimal follow-up of 6 months. Pachymetry was 462±44.9µm (range: 328-575µm). There was a flattening effect in Kmax and improvement of BCVA during all follow-up period. Kmax and BCVA changed at 48 months (n=32) from 55.9±6.2D to 51.9±4.7D (p=0.007) and from 0.34±0.16 to 0.25±0.23 (p=0.013) respectively and at 60 months (n=14) from 54±5.5D to 50.4±6.2D (p=0.023) and from 0.29±0.17 to 0.22±0.22 (p=0.024) respectively. One eye had microbial keratitis, 1 eye had sterile infiltrates and 4 eyes had haze. Two eyes lost 2 lines of BCVA not related to haze or increase in Kmax. One eye had re-treatment due to continuous progression.

Conclusions: CXL is an efficacious procedure for KC progression in young patients.

"A Tooth for an eye": Our Experience With the First Case in Israel of Osteo-Odonto-Kerato-Prosthesis (OOKP) Surgery in a Patient With Severe Ocular Surface Disease

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Background: Osteo-Odonto-Keratoprosthesis (OOKP) is a multistage, complex surgery aimed to restore vision for patients suffering from bilateral corneal blindness. This complicated surgery is reserved for patients in whom there is neither chance for successful corneal transplantation nor chance for synthetic prosthesis implantation (e.g: Boston K-pro).

Methods: A 58 years old monoculus patient with corneal blindness due to ankyloblepharon, conjunctivalization and keratinization of the ocular surface following Stevens-Johnson`s synd` is the case presented. A detailed description of the first ever OOKP performed in Israel (and the middle-east) is given: Preparation of the tooth-bone prosthesis, reconstruction of the jaw from hip bone graft, ocular surface preparation for future surgical steps, and finally the implantation of the tooth-bone prosthesis in the eye.

Results: To this date, the last part of the surgery is yet to be performed thus the final result will be presented at the meeting and not at the abstract. Up to this point, all other steps of the surgery were performed. OOKP graft preparation was successful, hip-bone grafting for jaw reconstruction was successful, during ocular surface reconstruction and covering with a buccal mucosa there was probably a minor corneal perforation. Later, the native cornea was severely infected. It was excised and the entire iris was removed. A corneal graft was sutured. Later, the crystalline lens was removed and the eye was re-covered by buccal mucosa. The last part of the surgery is due on March 2018.

Conclusion: To date, OOKP is the last resort for patient with corneal blindness with conjunctivalization accompanied by keratinization of the ocular surface. We hereby present our experience and point out the difficulties and complications encountered during our first case.

Familial Presentation of Keratoconus

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Background: Keratoconus is a bilateral and usually asymmetric disease in which the ectatic cornea becomes conical. It typically presents in adolescence and tends to progress into the third or fourth decade of life. Keratoconus is a multifactorial disease and has complex genetics. Although the majority of patients presenting to ophthalmologists with keratoconus have a sporadic form of the disease, there is growing evidence of familial keratoconus and the involvement of genetic factors. If complete slit-lamp examination, refraction, and corneal topography were performed, 11%–14% of apparently unaffected relatives of patients with keratoconus were diagnosed as well, changing the classification from sporadic to familial. Pedigrees with familial keratoconus display an autosomal dominant inheritance with reduced penetrance. However other modes of inheritance have been described, including autosomal recessive mode.

Methods: Case Series.

Results: We present a family in which the 45 years old mother was diagnosed with keratoconus while in her twenties. Presentation of one of her 5 children (ages 13-25) who was diagnosed with progressive keratoconus resulted in active screening of all other children. Refraction, bio microscopy, corneal topography and tomography were performed. The screening revealed 2 siblings diagnosed with keratoconus, 1 sibling was defined as having forme fruste keratoconus and 1 sibling (aged 13 years) has orthogonal WTR astigmatism. No other family members were reported as having keratoconus.

Conclusions: Positive family history was detailed in several studies screening keratoconus patients. In Israel, Milodot et al found that 21.74% of their cohort of keratoconus patients reported at least one 1st degree relative with the disease.

Although prevalence of keratoconus in families varies considerably, our small case series in a single family presents high penetrance of the disease and places emphasis on active screening of family members of keratoconus patients. Further genetic investigation is planned.

Gender Matching: A Simple Trick to Improve Corneal Transplant Success Rate

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Aims: Gender un-matched has been recently reported as a risk factor associated with corneal rejection. Our aim was to investigate the effect of gender un-matching on the short-term rate of corneal rejection and failure in a single tertiary hospital.

Methods: We conducted a retrospective chart review of corneal transplantation performed by a single surgeon. Time to graft rejection or failure was compared using Kaplan–Meier survival curves between gender matched (Male®Male or Female®Female) and unmatched subjects (Male®Female or Female®Male).

Results: Analysis included 121 patients. The gender matched (n=59) and unmatched groups (n=60) were similar in regard subject`s age (p=0.3) but differed in regard to risk for graft failure (surgery type, glaucoma status, corneal vascularization and ocular surface disease), with higher incidence for risk in the matched group. Unadjusted Kaplan-Meier analysis revealed matched and unmatched pairs to be fairly similar in the time to graft failure. However, when adjusted Kaplan-Meier analysis for risk factors for rejection demonstrated that the difference between the groups becomes more pronounced.

Conclusions: A significant increase in time to rejection and failure was seen in gender-matched transplants, when risk was adjusted. The difference appears to become significant two years post-surgery. This may suggest a chronic low-grade inflammation exposure in the unmatched group as responsible cause for the increased grafts failure rate.

Update Lecture: Combining Corneal Collagen Cross-Linking CXL With Photo Refractive Keratoplasty PRK – Legends and Facts 2018 Update

Joseph Frucht-Pery, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

Refractive surgery is an acceptable contraindication in KC patients. However, a successful use of CXL for progressing KC was an inspiration for some authors to suggest a refractive approach of combined use of CXL and PRK in patients with KC. Reports of combined CXL and PRK in KC eyes mostly indicated improvement of UCVA and BCVA and practically no complications. In more than 20 published studies only 1 patients had lost 2 lines of BCVA. While in KC eyes treated with CXL alone, the reported rate of complications is by far greater: 2-5% of treated eyes lost 2 lines or more of BCVA.

In my personal experience, as a consultant, I examined 5 patients from Israel and elsewhere who lost lines of BCVA and some had severe corneal scars. 2 of those patients underwent PKP procedures. From some of my colleagues I received data of 7 other patients who loss lines of BCVA [in Turkey] and of 3 patients [in Germany], unpublished data. Before the treatment some of these KC patients had BCVA of 6/6 and many had stable KC for years.

The risks of photo ablation in KC eye will be discussed.

Glaucoma

Prevalence of Hypotensive Episodes in Patients With Hypertension, With or Without Glaucoma

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Background: Contemporary studies suggest that low ocular perfusion has an important role in pathogenesis and progression of open angle glaucoma (OAG). Patients with low nocturnal blood pressure (BP) are considered to be at risk of OAG progression. Patients with systemic hypertension (SH) may be vulnerable as they might have hypotensive incidents when treated with antihypertensive medications.

Methods: We retrospectively analyzed records of 24-hour ambulatory BP monitoring of a random group of 270 consecutive patients with SH, and reviewed their medical records. A subgroup of 20 patients (7.4%), had a diagnosis of OAG according to their records. Based on data from the Barbados Eye Studies, we calculated threshold values for critical decrease in diastolic BP (DBP) and mean arterial pressure (MAP). These values were 62 and 69 mmHg, respectively. For each patient, percentage of readings with low DBP and MAP were calculated.

Results: The group of 250 SH patients without apparent OAG included 109 men, 141 women, mean age was 60. Mean age of the 20 patients (7 men, 13 women) with SH and OAG was 67. Low critical values of DBP in over 25% of daytime readings occurred in 21% of SH patients compared to 45% of SH-OAG patients (p=0.02). Nighttime prevalence of low DBP increased to 53% and 75%, respectively (p=0.06). Low values of MAP in over 10% of nighttime readings occurred in 22% of SH group compared to 40% of SH-OAG patients (p=0.09).

Conclusion: Hypotensive incidents are frequent among patients with SH. Such episodes tended to be more prevalent and prolonged in SH patients with OAG. Ambulatory 24-hour BP monitoring seems to be a useful tool to identify OAG patients with concomitant SH who might be at risk for progression, and might need to modify their antihypertensive therapy.

Augmentation of Intracameral Bevacizumab as an Adjunct to Trabeculectomy: A One-Year Prospective Randomized Controlled Study

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Purpose: To evaluate the adjunctive effect of intracameral Bevacizumab on trabeculectomy.

Methods: A randomized, prospective clinical trial consisting of patients with primary open-angle glaucoma (POAG) or pseudoexfoliation glaucoma (PXFG) who were randomized to have trabeculectomy and randomly assigned to two groups: MMC group were intervened with Mitomycin C (MMC) and MMC and Bevacizumab group were intervened with 1.25mg Bevacizumab adjunctive to MMC. Complete success was defined as intraocular pressure (IOP) between 5 and 18 mmHg and at least 30% IOP drop without anti glaucoma treatment.

Results: A total of 69 patients (30 females and 39 males) were recruited. 33 patients were assigned to the MMC group and 36 patients in MMC and Bevacizumab group. Average age of MMC group was 70.5±10.5 years compared to 71.5±10.8 years of MMC and Bevacizumab group (p=0.314). IOP at presentation was 28.3±8 mmHg and 28.4±8.6 mmHg, compared to 10.8±3.4 mmHg and 12.3±3.7 at 12 months (p0.0001) for MMC group and MMC and Bevacizumab group, respectively. Complete success at 12 months was achieved in 65% of MMC group compared to 60% of MMC and Bevacizumab group (p=0.772). Overall success was achieved in 82% compare to 80% of patients at 12 months (p=0.784). Both groups showed statistical significant reduction in IOP after 6 and 12 months ($p \leq 0.001$).

Conclusions: Augmentation of Bevacizumab during MMC trabeculectomy in patients with POAG or PXFG does not improve MMC trabeculectomy success rate.

Reduction of Intraocular Pressure After Bariatric Surgery

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Background: Numerous population-based studies have found an association between obesity and ocular hypertension. Bariatric surgery is associated with many health benefits in certain populations. The effect of weight loss achieved by bariatric surgery on intraocular pressure (IOP) is not clear. In this study we aim to investigate the effects of bariatric surgery on intraocular pressure IOP.

Methods: We prospectively enrolled consecutive obese patients who underwent a laparoscopic sleeve gastrectomy procedure. We measured IOP prior to and 3-6 months following surgery, and recorded medical and demographical parameters.

Results: Thirty-two patients completed all evaluations. Mean age was 40.5±12 and 24 (75%) were men. Following surgery mean body mass index (BMI) decreased from 42±6 to 31±8 ($p<0.001$). The mean IOP decreased from 16.9±4 mmHg to 14.1±3 mmHg ($p<0.001$). The extent of IOP reduction was correlated with the baseline IOP (Pearson $R = 0.737$, $P < 0.001$) and central corneal thickness (Pearson $R = 0.453$, $P = 0.010$).

Conclusions: In a cohort of obese individuals, undergoing sleeve gastrectomy, there was a significant decrease in IOP measured 3-6 months after the procedure. Our results suggest that significant weight loss could have beneficial effects on IOP in obese individuals with ocular hypertension which might enable avoidance of anti-glaucoma medications.

Can We Avoid Underdiagnosis of Pseudoexfoliation Syndrome in Pseudophakic Patients?

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Background: Pseudoexfoliation syndrome (PES) is a common age-related systemic disorder affecting more than 60 million people worldwide. PES diagnosis has significant implications on clinical management. This study aims to examine the sensitivity and specificity of PES diagnosis in pseudophakic patients.

Methods: Study cohort included 40 patients admitted for cataract surgery at the Ophthalmology Department of a single tertiary medical center. A detailed slit lamp examination of the patients including gonioscopy before and after pupillary dilation, was performed by a glaucoma specialist prior to surgery. An assessment form was completed for each patient, documenting the presence or lack of PES clinical signs. Patients were re-examined in a similar fashion 7-14 days post-surgery by a masked glaucoma specialist.

Results: Twenty three patients (23 eyes) were included in the statistical analysis. PES was diagnosed preoperatively by the first observer in 13 patients (56.5%). PES diagnosis was based on 3 clinical features; Sampaolesi line (100% of cases), anterior capsular deposits (76.9%) and pupillary border deposits (61.5%). Postoperative PES diagnosis was based on the same criteria. Postoperatively, 9 of the 13 preoperatively established PES patients were diagnosed with PES (69.2% sensitivity), and one preoperative non-PES patient was diagnosed with PES (90% specificity). Correlation between pre and postoperative diagnoses was statistically significant (X2=11.37, p0.01). Pupillary border deposits (88.9% of cases) and Sampaolesi line (66.7% of cases) were the corner stones of postoperative PES diagnosis. However, anterior capsular deposits were evident only in minority of the postoperative examinations (33.3%).

Conclusion: PES under-diagnosis in pseudophakic patients is common, and may have significant implications on appropriate management. Careful attention to pupillary border anatomy and meticulous gonioscopic assessment of the iridocorneal angle in the search of clues for PES are essential for accurate diagnosis. Preoperative documentation of PES is important and would help avoid this diagnostic pitfall.

Can the Eyephone App Help Improve Adherence to Glaucoma Medical Therapy? Preliminary Pilot Study Results

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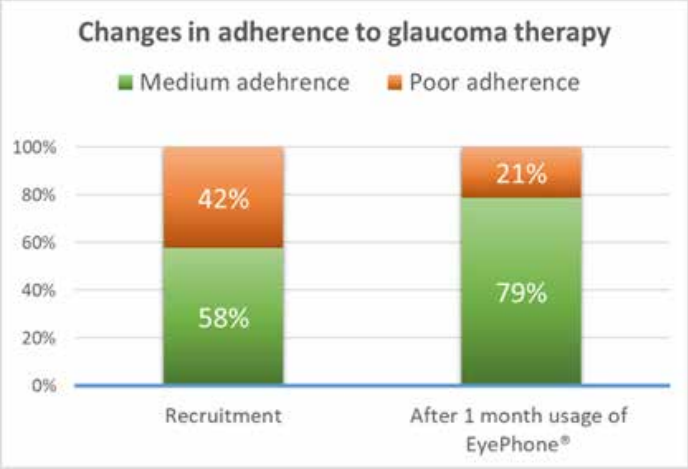
Background: Glaucoma is the leading cause of irreversible blindness worldwide. In many cases, early detection and proper medical treatment can significantly affect the progression of the disease. However, treatment is limited by low adherence, which can even necessitates surgery. The EyePhone® App is a free non-commercial reminder utility that is designed specifically for the needs of glaucoma patients. In this pilot study, we aimed to determine the apps usefulness in improving adherence to medical treatment among glaucoma patients.



Methods: Glaucoma patients treated in the glaucoma service at the Goldschleger Eye Institute, Sheba Medical Center, were recruited. After providing consent and receiving a short explanation, the EyePhone® app was installed on their smartphone device and the notifications for the current medical treatment were entered. Demographic and relevant medical data were recorded and the patients were asked to fill a Morisky Meication Adherence Scale (MMAS) questionnaire. At one-month follow-up the subjects were asked to re-fill the questionnaire as well as report their experience with the app. Objective adherence rate data were also recorded from the application.

Results: Nineteen patients (11 men and 8 women) aged 66±14 years were recruited. Time from glaucoma diagnosis ranged between 1 month and 36 years (mean 11±10 years) with 74% of patients having bilateral disease. At recruitment, 11 patients reported medium adherence (MMAS score 1-2) and eight poor adherence (MMAS score 3-8). At follow-up, after one month of using the EyePhone® app, the rate of patients with poor adherence was significantly ($P<0.01$) reduces by half (figure 1). Reduction in MMAS score correlated significantly with higher app rankings ($P<0.05$).

Conclusion: In this pilot study, a significant improvement in glaucoma adherence was achieved at one month of using the EyePhone® App among glaucoma patients with poor adherence. Larger scale studies are needed to better assess its long-term clinical impact.

The Efficacy of Micropulse Transscleral Cyclophotocoagulation (MP3) Treatment for Advanced and End Stage Glaucoma

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Background: Continuous Wave Cyclophotocoagulation is an effective treatment commonly used for advanced and end stage glaucoma, nevertheless, with severe side effects including inflammation, hypotony, severe vision loss and phtysis bulbi. A newer version of cyclophotocoagulation (mp3) appears to be much safer yet provide a similar intraocular pressure (IOP) reduction. The purpose of the current study is to describe our experience with this new technology in advanced or end stage glaucoma patients and highlight best practices, the "double topping" method and possible pitfalls.

Methods: 10 consecutive advanced or end stage glaucoma patients underwent MP3 treatment. The procedures were done using retro bulbar anesthesia and a new "double topping" application method. Pre and post procedural data was collected including visual acuity (VA), Intra Ocular Pressure (IOP), number of medications and complications.

Results: In all the patients there was a significant decline in IOP after the procedure. Average IOP reduction was 12±3.6 mmHg and average drop in number of medications was 0±1.8.

Conclusions: Micropulse Transscleral Cyclophotocoagulation appears to be an effective treatment in advanced and end stage glaucoma, with a high safety profile.

Is Needling After XEN Successful?

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Purpose: The XEN-45 is a hydrophilic collagen implant which drains aqueous to the sub-conjunctival space. Needling is a common procedure with varying success rates, ranging from 40% to 71%. Here we aim to evaluate the success rate of needling procedures following XEN surgery.

Methods: This retrospective study included patients who underwent XEN surgery between 10/2016 and 10/ 2017 at Wolfson medical center. Intraocular pressure was measured immediately after the needling, after 1 week 1,3,6 and 12 months. Successful needling was considered as IOP of 6-18 at the last follow up visit.

Results: We reviewed the charts of 29 eyes of 27 patients which had XEN implantation. 41.3% were women, mean age was 68.2. Twenty-four eyes had XEN only, and 5 underwent combined cataract and XEN. The mean IOP before surgery was 21.96 and, and the pressure at the last follow-up visit was 15.75. Overall success rate was 68.96).

55.7% eyes underwent needling due to increase IOP following the XEN surgery; overall 31 needling procedures were performed throughout the follow-up period. Among all subjects who had needling, 7 (43.75%) eyes had one procedure of needling, 4 (25%) eyes passed this procedure twice and 5 (31.25%) eyes had to undergo the needling three times or more. Success rate of 1st needling procedure was 4/7 (57.14%) eyes, 2nd procedure was 1/4 (25%), and if 3 or more were needed it was successful in 2/5 (40%).

Overall success rate of eyes who had needling was 7/16 (43.75%). The rest had to pass another procedure to control IOP: 7 trabeculectomy, 1 Diode and 1 passed glaucoma drainage device implantation.

Conclusion: We found that over half of those patients undergoing XEN surgery needed one or more needling procedure, among them, a significant portion will have to undergo further surgery to reduce IOP.

Retina

Socio-Economic Status and Visual Outcome in NVAMD

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Background: Due to the high prevalence of AMD, it is of utmost importance to recognize factors that contribute to a lower visual outcome. Socioeconomic status, which is an important determinant of health, is such a potential factor. We aim to assess if socioeconomic status is associated with visual outcome in neovascular AMD (nvAMD) in the Israeli population.

Methods: Retrospective single center cohort study, with demographic and clinical data extracted from patient charts. Patients` residential address recorded in the electronic charts was used to determine socio-economic status (SES) based on the 2008 Israeli census. Statistical analysis was performed to define the relationship between the economic cluster and clinical parameters.

Results: 233 nvAMD patients treated at Hadassah medical center were identified. A weak correlation was found between the baseline visual acuity (VA) of the first eye and SES (R=-0.13, p=0.049). There was no association between baseline VA of the first eye with nvAMD and SES, when grouping the patients into four SES groups (p= 0.185). Nevertheless, there is a trend for better baseline VA in higher SES. No correlation was found between the SES and the VA at presentation of the second eye (R=-0.05, p=0.95). SES was not associated with the number of anti-VEGF injections to the first (p=0.943) or second eye (p=0.704). After one-year of follow-up, an insignificant correlation was identified between the SES and the VA of the first eye (R=-0.138, p=0.067), but not the second eye (R=0.007, p=0.067). No association was found between the SES and the VA of the first or second eye after 1 year of therapy (p=0.421, p=0.900 respectively).

Conclusion: The lack of association between socio-economic status and visual outcome in nvAMD followed up in Jerusalem, suggests that there are no social disparities in ophthalmologic care.

Personalized Protocol for Diabetic Retinopathy Screening

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Purpose: Early detection of diabetic retinopathy may prevent visual loss. The current screening protocol recommending a yearly examination is general and does not take into consideration other risk factors. We used the data collected on over 100,000 type 2 diabetic patients to develop a model predicting development and progression of diabetic retinopathy and enabling a tailored screening and follow-up protocol for each patient.

Methods: Data was collected from the database of "Maccabi health services" including information regarding demography,diagnoses, laboratory findings, hospitalizations and treatments. For purposes of this study, we defined three disease-related stages: (1) no DR (2) NPDR without macular edema (3) NPDR with macular edema or PDR. We assigned a specific stage for each time point of every diabetic patient, based on their corresponding clinical data. We assumed that the probability of switching stages depended only on the patient's current stage and their personal and clinical information at that time.

We trained a conditional probabilistic model that predicts the probability of momentary stage switch as well as when in the future the switch is liable to occur, and recommends on scheduling the next screening examination accordingly. In addition, the model handled missing data and uncertainty concerning the patient's stage.

The recommended screening was evaluated based on the predicted number of examinations and the number of days until diagnosis.

Results: The following features significantly increased the probability of switching stages (p-value<1e-5): High HbA1c,Years from first diagnosis of diabetes ,Age ,male gender,High blood pressure, lower albumin levels.

Other features such as BMI did not improve the model.

Scheduling the next examination for when the model predicts over 1.5% probability of a switch, provided us with a screening protocol reducing the time till switch detection is decreased by 20%.

Conclusions: Personal information can be used to determine individualized screening and follow-up protocols.

Phase I/IIa Clinical Trial of Human Embryonic Stem Cell (hESC) -Derived Retinal Pigmented Epithelium (RPE, Opregen)® Transplantation in Advanced Dry Form Age-Related Macular Degeneration (AMD): Interim Results

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5. Cell Cure Neurosciences Ltd, Jerusalem, Israel
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Purpose: Transplantation studies using autologous RPE cells in AMD patients suggest that introducing healthy RPE cells may be of therapeutic benefit. Over the last decade we developed the technology to derive RPEs from hESC using a directed differentiation, xeno-free GMP protocol. Safety and tolerability of this cell product is being evaluated in a dose-escalating Phase I/IIa clinical study in patients with advanced dry AMD accompanied by geographic atrophy (NCT02286089). Here we report accumulated safety and imaging data from the first 3 cohorts of patients, who received a subretinal transplant of 50k, 100k or 200k OpRegen cells in suspension, with up to 2 years follow up.

Methods: Transplantation was performed by subretinal injection following conventional 3G vitrectomy under local anesthesia. Systemic immunosuppression is administered from 1 week prior to transplantation until 1 year after. Systemic and ocular safety is closely monitored. Retinal function and structure are assessed using various techniques including BCVA, color OCT and fundus autofluorescence imaging.

Results: At date of writing, dosing of cohort 3 with 100k cells is ongoing, following completion of the first 2 cohorts of 3 patients each that are now under long term follow-up. Surgeries have been uneventful, with subretinal fluid absorbing within <48 hours. OCT imaging showed healing of the retinal penetration site within 2 weeks following surgery. Treatment has been well tolerated systemically and with regard to ocular findings. Imaging changes associated with OpRegen include subretinal pigmentation in area of transplant in the majority of patients, often accompanied by hypo– and hyper–fluorescent spots on FAF imaging and irregular reflectance above areas of atrophy and host RPE on OCT scans. These changes develop over the first 2 to 3 months and persist through the latest time point examined. Of note, epiretinal membranes that did not require surgical intervention were seen in some patients.

Conclusions: Subretinal transplantation of OpRegen hESC-derived RPE cells in patients with advanced dry AMD appears well tolerated to date. Findings on imaging suggest presence of cells in the subretinal space. These results provide a framework for functional assessments in cohorts with improved vision at baseline.

Pattern Dystrophies Associated With Mutations in the Peripherin/RDS Gene

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Background: Mutations in the peripherin/RDS gene are rare, and exhibit a wide variety of phenotypes in affected patients. We describe the underlying molecular basis and phenotypes of retinal pattern dystrophy identified in two Moroccan Jews families and one Christian Arab family in our medical center.

Methods: Affected patients and their family members underwent detailed ophthalmologic examination including funduscopy, autofluorescence imaging, and optical coherence tomography (OCT). Selected family members underwent fluorescein angiography (FA) and electrophysiological testing. Blood samples were obtained from the participants for DNA extraction and mutation screening of the peripherin/RDS gene.

Results: A truncating peripherin/RDS gene mutation (c.441delT) was identified in the Moroccan Jewish families, whereas a missense mutation (R142W) was found in the Christian Arab family. Funduscopic examination revealed a vitelliform butterfly-type macular dystrophy in the Moroccan families, and Stargardt-like macular changes in the Christian Arab family. Over time both mutations resulted in progressive macular atrophy and visual acuity deterioration. OCT revealed typical deposits at the level of the RPE, and in advanced stages- diffuse geographic atrophy. Electrophysiology may show abnormal EOG readings.

Conclusion: Among the 6 ascertained patients a phenotypic difference was suggested between those who carry a truncating mutation and those with a missense mutation of the peripherin/RDS gene.

Diagnosis of Peripheral Retinoschisis Using Ultrasound Biomicroscopy

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Background: Differential diagnosis of retinoschisis (RS) from retinal detachment (RD) can be challenging, especially when the lesion is very anterior. Advances in ultrasound biomicroscopy (UBM) enable high-quality visualization of even the most peripheral retinal areas. We describe new UBM findings in RS that can help establish diagnosis.

Methods: Medical records of subjects diagnosed with RS and RD who underwent UBM examinations were retrospectively collected. Clinical data and UBM, US B-scan and SD-OCT images were obtained. The US B-scans and UBM examinations were performed at 10 and 50 MHz, respectively. Images were evaluated for detachment shape (e.g., flat membranous, dome or irregular) by the US B-scan, and for the presence of intra-retinal pillars, retinal layer splits and intra-retinal cysts by UBM.

Results: Forty-eight eyes of 48 patients were eligible for analysis, of which 25 were diagnosed as RS and 23 as RD. In 23 cases, the lesion had a flat membranous shape on the US B-scan which was distributed almost equally between the RD (n=11, 47.8%) and RS (12, 52.2%) groups. All the dome-shaped cases (n=13) were in the RS group, and all the irregular-shaped cases (n=11) were in the RD group. A retinal layer split was the most common finding on UBM in the RS group (72%), followed by intraretinal pillars (64%) and intraretinal cysts (36%). These findings were absent in all the cases in the RD group ($P<0.001$).

Conclusions: Advances in UBM enable good quality high-resolution imaging of even the most peripheral retinal areas. The three herein described lesion types as observed by UBM were present only in RS cases. Identification of these lesions might help distinguish RS from RD in difficult cases when the morphology is not distinctive (e.g. flat membranous shape), and especially when the anterior retinal areas can not be demonstrated adequately by other imaging modalities.

Optical Coherence Tomography Biomarkers to Distinguish Diabetic Macular Edema from Pseudophakic Cystoid Macular Edema Using Machine Learning Algorithms

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4. Karl Landsteiner Institute for Clinical Risk Management, Vienna Hospital Association, Austria
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Purpose: In diabetic patients presenting with macular edema (ME) shortly after cataract surgery, identifying the underlying pathology can be challenging and may influence clinical management. Our aim was to develop a simple classifier able to confirm a diabetic etiology of macular edema rather than a pseudophakic one, using few SD-OCT parameters.

Methods: We analyzed SD-OCT data of 153 patients with either pseudophakic cystoid macular edema (PCME) (n=57), diabetic macular edema (DME) (n=86) or a "mixed" etiology (n=10) of ME. We used several advanced machine learning algorithms in order to evaluate the patterns of ME and to develop a predictive classifier using the smallest possible number of parameters with the highest accuracy.

Results: The parameters found to be most differentiating were the existence of hard exudates (HE), microfoci (MF), sub-retinal fluid (SRF), ME pattern, and the location of cysts within retinal layers. Using only 3 yes/no parameters (HE, SRF and MF) we achieved a sensitivity of 96-98% with a specificity of approximately 95% for confirming a diabetic etiology (AUC: 0.937-0.969).

Conclusions: Confirming the existence of a diabetic etiology for edema in patients with diabetic retinopathy shortly after cataract surgery was possible using few SD-OCT parameters with high accuracy. We propose a clinical decision flowchart for cases with uncertainty, which may support the clinical decision for intravitreal injections rather than treatment with NSAIDs.

Choroidal and Sub-Retinal Pigment Epithelium Caverns: Multimodal Imaging Characteristics and Relation to Friedman Lipid Globules

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Background: Extracellular lipid globules were first shown histologically in choroidal stroma of healthy eyes by Friedman and also in geographic atrophy (GA) and neovascular (nv) tissue in age related macular degeneration (AMD). Querques described hyporeflective choroidal caverns in GA by optical coherence tomography (OCT) and OCT angiography (OCT-A). We observed similar OCT signatures in the subretinal pigment epithelium (sub-RPE) space in nvAMD, and in the choroid of several retinal diseases. We investigated multimodal imaging features of choroidal and sub-RPE caverns, their relation to histology, and hypothesized on their nature.

Methods: Forty-one eyes of 28 subjects underwent multimodal imaging, including color fundus, near-infrared reflectance (NIR), spectral-domain (SD) or swept source (SS) structural OCT and OCT-A (cross-sectional, en face).

Results: Caverns were seen in eyes with GA(16), nvAMD(8), Stargardt disease(4), cone dystrophy(2), pachychoroid spectrum(6), choroidal hemangioma(1), and healthy eyes(4). En face OCT showed sharply delimited hyporeflective areas as large as choroidal vessels, frequently grouped around or following choroid vessels or in the nv tissue. Cross-sectional OCT showed a characteristic posterior hypertransmission. In the presence of RPE atrophy, SD and SS-OCT were both useful. If RPE was intact, SS-OCT was superior in detecting choroidal caverns. OCT-A showed absence of flow signal within caverns. Caverns were hyperreflective on NIR.

Conclusions: We describe the presence of hyporeflective choroidal and sub-RPE caverns in a wide spectrum of retinal diseases and healthy subjects. Based on the optical similarity to intraretinal silicon oil droplets (hyporeflective with hypertransmission), we speculate that caverns are lipid-rich. Friedman lipid globules, with similar sizes and tissue locations in AMD and healthy subjects, are candidates for histologic correlates of caverns. Their role in chorioretinal physiology, perhaps as a lipid depot, is approachable through clinical imaging.

Macular Thickness Changes following Femtosecond Laser Assisted and Conventional Phacoemulsification

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Background: Cataract extraction by phacoemulsification is the most common intraocular surgery. Despite advances in phacoemulsification, clinically significant and subclinical macular thickening can be detected following complicated but also uncomplicated cataract surgery. Femtosecond laser assisted cataract surgery (FLACS) has been increasingly incorporated into surgical practice in recent years. We sought to compare the effect of FLACS and conventional phacoemulsification surgery on central macular thickness CMT), using spectral domain optical coherence tomography (SD-OCT).

Methods: In this prospective study, 251 uncomplicated cataract patients who underwent either FLACS (185 patients) or conventional phacoemulsification (66 patients) were included. Demographic data including age and gender, eye laterality, best corrected visual acuity and complete ophthalmic clinical examination were collected for each patient in both groups. All patients underwent SD-OCT scans and CMT was measured before surgery and at 1, 3 and 6 months postoperatively.

Results: No significant differences were found between FLACS and conventional phacoemulsification patients in gender, age, eye laterality, pre-operative cataract grading and visual acuity. Mean pre-operative CMT was similar in the FLACS and conventional phacoemulsification groups (263.1 and 258.8 microns, respectively) (p0.05). In both the FLACS and phacoemulsification groups, CMT significantly increased after surgery and remained significantly thickened at 1 month (279.8 and 275.1 microns, respectively), 3 months (279.8 and 271.4 microns) and 6 months (287.9 and 275.7 microns) of follow-up, compared to pre-surgery measurements. No significant differences in CMT between the two groups were recorded at any of the follow up time points.

Conclusion: As previously reported, cataract surgery, even uncomplicated, is associated with post-operative macular thickening. In our study, central macular thickening persisted for up to 6 months after surgery. A similar pattern was found in the two study groups, with no significant differences noted between FLACS and conventional phacoemulsification surgery.

Clinical Characteristics of a Large Cohort of Patients With Retinitis Pigmentosa due to Biallelic FAM161A Mutations

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Background: FAM161A mutations are the most common cause of autosomal recessive RP in the Israeli population, especially among Jews of North-African descent, while they seem to be rare elsewhere. In the present study we explored the clinical phenotype of patients harboring FAM161A mutations in order to provide information on the spectrum of disease associated with this gene as a preparation for a potential gene augmentation therapy.

Methods: Clinical information including best-corrected visual acuity (BCVA), refractive error, full-field electroretinography (ERG), Goldmann visual fields, ocular coherence tomography (OCT), color and autofluorescence fundus imaging was collected from the medical records of 95 FAM161A RP patients.

Results: The most frequent initial symptom was night blindness. BCVA was relatively preserved in most patients through the first three decades of life, and often severely deteriorated by the 5th-6th decades. Most patients manifest moderate to high myopia, the mean refractive error being ~-6D. In advanced cases, fundus examination showed typical RP signs. Interestingly, pigmentary changes appeared relatively late, and in older patients (ages 50+), nummular pigmentation was also observed. Both rod and cone flicker ERG responses were non-detectable at first testing in most patients, and visual fields were constricted from early on. Macular OCT showed relative preservation of the ONL and ellipsoid zone in the fovea, with thinning and atrophy in the flanking areas. Mild epiretinal membranes were often observed, but frank cystoid macular changes were very rare.

Conclusions: FAM161A causes ARRP with a clinical phenotype compatible with that often described in RP. Significant myopia, paucity of bone-spicule-like pigmentation and lack of cystoid macular changes are characteristic. The data collected can assist in evaluation of FAM161A patients, provides information on disease course, and may be relevant for future application of gene augmentation therapy that is currently being tested in a mouse model of this gene.

Update Lecture: Potential Treatments on the Horizon for Dry AMD

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Background: Atrophic (dry) age-related macular degeneration (aAMD) is a common cause of visual loss among the elderly. Geographic atrophy (GA) is the advance form of aAMD which is associated with severe visual loss. The prevalence of this form of the disease increases with age and it is also commonly found in association with neovascular AMD.

Methods: The talk will review recent advances in the development of therapies for aAMD.

Results: Multiple clinical trials have been initiated in order to assess novel therapies for aAMD. Several studies focused on the development of inhibitors of complement activation which is associated with the development of AMD. Few component of the complement cascade have been targeted for that purpose. Development of cell-based therapies and specifically stem cell treatment for replacing damaged RPE is also being performed. Other potential pathways include growth factors, visual cycle inhibitors, anti-amyloid beta compounds, and lipid lowering agents.

Conclusions: There are currently multiple clinical trials that are focused on the development of therapies for aAMD, and on the identification of novel outcomes to assess disease progression at its early stages. Important progress in some of these avenues was recently reported and will be discuss in the presentation.

The Epidemiological, Clinical Characteristics and Outcomes of Adolescent Rhegmatogenous Retinal Detachment

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3. Ophthalmology, Sheba Medical Center, Tel-Hashomer, Israel

Background: Rhegmatogenous Retinal detachment (RRD), is uncommon among children and adolescents. Previous studies demonstrated worse prognosis for RRD repair in children compared to adults, but there is limited data regarding the outcome of RRD in adolescents. Our aim is to evaluate clinical characteristics and prognosis of RRD repair in adolescents.

Methods: Historical cohort of all patients aged 8-18 years old treated for RRD between 2000 to 2016 at the Tel Aviv Medical Center. Treatments and outcomes were compared between traumatic and non-traumatic RRD.

Results: Fourthy-five eyes of 42 patients were included. In 21 (47%) RRD developed after ocular trauma. Mean age of presentation was 13 years old, with a 2.2:1 male-to-female ratio. Mean duration of follow up was 55.6±54.8 months. Forty percent had an attached macula on presentation. Overall, the most common primary surgery was pars-plana vitrectomy (PPV) (53.3%), followed by band-vitrectomy (26.6%) and scleral buckle (20%). Silicone oil was used for tamponade in (80%) of cases treated with PPV and in (55%) in band-vitrectomy. Reattachment was achieved in all cases with a (62%) single surgery anatomic success rate. Visual acuity (VA) did not improve significantly from presentation (1.32 vs 1.12 LogMAR, P = 0.361). The most common post-operative complications were PVR (38%) followed by recurrence of RD (31%).

No statistically significant differences were observed in postoperative visual acuity or complications rate between post traumatic and non traumatic groups. History of previous eye surgeries, older age, detached macula on presentation and the use of silicone oil were found to be associated with poor final visual outcome.

Conclusions: We present a series of RRD in adolescents. Though reattachment rate was high there was no significant improvement in VA at the end of follow up. There was no correlation between etiology to final visual acuity and to complications rate.

Pneumatic Vitreolysis for the Treatment of Symptomatic Vitreomacular Traction - a Prospective Pilot Study

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Background: Vitreomacular traction (VMT) may be asymptomatic, but may cause visual symptoms such as blurred vision or metamorphopsia. Vitrectomy, sometimes combined with peeling of the internal limiting membrane, is considered a definitive treatment for VMT. One less invasive treatment option for symptomatic VMT is intravitreal injection of ocriplasmin (Jetrea, Genentech), which was found to be effective in only 26.5% of cases, has some significant side effects and costs more than 3000USD. Intravitreal gas injection was reported to be as effective at least as Ocriplasmin with less side effects, and no financial burden. This research determine the efficacy of pneumatic vitreolysis in the treatment of symptomatic VMT. To the best of our knowledge this is the first prospective research for that particulare question.

Methods: Patients choosing intravitreal gas injection as their preferred treatment for symptomatic VMT were invited to participate in this prospective study. 0.3ml of C 3 F 8 (perfluoropropane) gas was injected. Optical coherence tomography was performed pre-and post procedure to determine the proportion of eyes showing release of VMT.

Results: Nine eyes of nine participants were included in the study, with a mean follow-up of 5.0±1.8 months. Gas injection resulted in the release of VMT in 7/9 eyes (78%) during the course of the study. Both eyes in which the VMT failed to release also showed an improvement in central macular anatomy. Mean visual acuity improved from logMAR 0.33±0.14 (~20/42) to logMAR 0.24±0.21 (~20/35) at final follow-up (p=0.029). 8/9 patients (89%) reported a subjective improvement in their presenting symptoms and/or vision during the study period. The mean maximum foveal thickness of 480±221um at baseline reduced to 282±94um by the time of the final visit (p=0.0007). Two patients had retinopexy for retinal breaks/suspect breaks.

Conclusion: Pneumatic vitreolysis is an effective treatment for symptomatic VMT and may offer cost savings for patients and/or health services.

Severe Ocular Injuries during IDF Low Intensity Combat and the Use of Protective Eyewear

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Purpose: To describe severe ocular injuries (final VA <= 6/60 or eye removal surgery) in IDF soldiers during low intensity combat from 1987-2014, and to evaluate whether protective eye wear reduced the incidence of these injuries.

Participants: All IDF soldiers with ocular injuries who were referred to Soroka and Sheba Medical Centers, and that were documented in the IDF trauma registry between 1987-2014.

Methods: Data regarding injury type, comprehensive ocular examination, Ocular Trauma Score (OTS) and Birmingham Eye Trauma Terminology System (BETTS), surgical intervention, and the use of protective eye wear were recorded and analyzed.

Results: Eighty-three soldiers (82 males, mean age 22 years) were injured and referred to Soroka (n=20) and Sheba (n=63) medical centers. Blast was the most common injury pattern (51, 61%) followed by gunshot wound and shrapnel (8% each). BETTS injury pattern disclosed IOFB (29%), followed by lamellar laceration, contusion, perforating and penetrating injury. Visual acuity improved from 6/45 at presentation to 6/15 after surgical or conservative treatment (mean FU time of 25 months, P<0.001). Twenty-six percent of patients had poor outcome. Data analysis of IDF trauma registry showed that the use of protective eyewear was associated with a significant decrease in ocular injuries.

Conclusions: Low intensity combat in IDF soldiers was associated with severe ocular injuries in 26% of patients. The use of protective eye wear reduced significantly these injuries, and should not only be mandatory but also enforced in the battle field.

Pars Plana Vitrectomy With Internal Limiting Membrane Peeling in Diabetic Macular Edema

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Background: The main abnormality associated with vision loss in non-proliferative diabetic retinopathy (NPDR) is diabetic macular edema (DME). The mainstay treatment for DME is Anti-VEGF injections, Intra- vitreal steroids and photocoagulation.In refractory cases, surgical intervention is recommended. The aim of our study was to evaluate the effectiveness of Pars plana vitrectomy combined with ILM peeling in DME.

Methods: 50 patients with refractory DME underwent vitrectomy with ERM and ILM peeling in our department, from 2014 to 2017. Preoperative and postoperative Macular central thickness and best-corrected visual acuity were compared. The mean follow up period was 10 months (3-38 months).

Results: The mean macular central thickness was reduced by 33% (p 0.001) and the mean visual acuity (logMAR) improved from 0.82 prior to the surgery to 0.59 (p 0.05).

Conclusion: According to the results of our work, diabetic patients with refractory macular edema, that underwent Pars plana vitrectomy combined with ILM peeling, showed a significant improvement in macular thickness and visual acuity.

Neuro-Ophthalmology

A Novel Method for Automated Visual Field Testing on Eyes With Severe Central Vision Loss

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Background: Reliable visual field testing requires the tested eye to be fixated on a target. This poses a major obstacle for eyes with severe central vision loss. This study presents a method that can be used if the fellow eye has sufficient visual acuity to reliably fixate.

Methods: A Fastpac algorithm was used with a red stimulus. A green filter was placed over the fellow eye. The green filter prevented transmission of the red stimuli, but allowed visualization of the white fixation light. Subjects were tested by both the conventional and the novel method, performed in a randomized order. The primary outcome was the degree of eye motion on gaze tracking.

Results: Eight subjects were recruited with visual acuity of hand motion or light perception in one eye and at least 6/60 in the fellow eye. In all cases there was less eye motion. A paired t test had a two-tailed p value of less than 0.0001. The mean reduction in motion was 69% (standard deviation 17%).

Conclusion: The novel method described provided a dramatic improvement in reliability, and offers a feasible solution for visual field testing in patients with unilateral severe central vision loss.

The Discrepancy Between Subjective and Objective Measures of Convergence Insufficiency in Whiplash-Associated Disorder Versus Control Participants

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Background: Motor vehicle accidents (MVAs) are a pandemic associated with human suffering and a burden to national economies. Whiplash-associated disorders (WADs) after MVAs are associated with disability claims, many of which are related to vision and ocular discomfort. We examined the incidence of symptoms and findings consistent with convergence insufficiency (CI) in a cohort of patients with MVA-related WAD compared with age-matched controls.

Methods: In this prospective cohort study; patients with MVA-related WAD and control subjects filled the Convergence Insufficiency Symptom Survey (CISS) questionnaire and underwent a detailed visual examination (distance and near BCVA and cover testing, Randot stereopsis, Maddox distance and Maddox-Thorington near-heterophoria, near point of convergence, base-out step fusional reserves, and amplitude of accommodation). The CISS score and binocular findings were recorded and analyzed using multiple logistic regression and adjusted for age and gender.

Results: A pathologic CISS score of 16 or more occurred in 26 of 57 WAD patients (45.6%) compared with 6 of 39 control participants (15.4%;P=0.002). Absolute CISS score was higher in the WAD group than the control group (15.3±10.0 vs. 7.7±7.7; P<0.001). Findings consistent with CI occurred in 7.0% of WAD patients and 7.7% of control participants (P=0.90).

Conclusions: Although CI is a listed form of disability commonly ascribed to MVA-related WAD, it is not unique to WAD, with an estimated incidence in the general population of 8%. In this study, designed to investigate whether the incidence of CI is increased in the setting of WAD, we found that although the incidence of visual symptoms was increased among WAD patients (P=0.002), the number of patients meeting clinical criteria for measurable CI was not increased compared with controls (7.0%vs.7.7%; P=0.90). This discrepancy between subjective and objective measures of CI in WAD stresses the importance of training to assess disability using objective, validated standards of examination.

Early Neuroimaging in the Management Of Acute Isolated Ocular Motor Nerve Palsies

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Background: The role of early neuroimaging in older individuals (age ≥ 50 years) presenting with acute isolated ocular motor nerve palsy is still under debate, and there is a lack of consensus between different medical specialties.

Methods: Retrospective chart review of patients ≥ 50 years with no risk factors or vasculopathic risk factors alone, presenting with acute isolated ocular motor nerve palsies between 1/2010 - 12/2016. We compared the rate of early neuroimaging referral between neurologists and ophthalmologists at initial presentation, and assessed the proportion of cases in which the final diagnosis (presumed microvascular ischemia vs. other causes) has changed after early neuroimaging.

Results: Fifty six patients were included in the study. 46/56 patients were referred to early neuroimaging. After exclusion of patients with 3rd nerve palsy (n =17), the rate of patients referred to early neuroimaging (n =39) was significantly greater when presented initially to a neurologist compared with an ophthalmologist (29/39 patients were referred to early neuroimaging, of whom twenty by a neurologist and nine by an ophthalmologist, p0.001). Overall, 10% of patients (6/56) were found to have a cause other than presumed microvascular ischemia, including: pituitary macroadenoma, myasthenia gravis and meningioma. Only 3/46 patients imaged (7%) were found to have a causative lesion, one with 3rd nerve palsy and two with 6th nerve palsy (2/29, 7%).

Conclusion: The decision to perform early neuroimaging in older patients with acute isolated 4th or 6th nerve palsy and vasculopathic risk factors could be weighed against observation alone, and should be obtained if there is a lack of resolution by 3 months or failure to demonstrate any recovery by one month. We emphasize that thorough history taking and prudent physical examination by neuro-ophthalmologists and neurologists are recommended to identify patients with greater risk, in need of early neuroimaging.

Diplopia in Adults Older than 65 Years

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Introduction: Diplopia may be caused by different etiologies and its incidence rises with age. We conducted a retrospective study in order to describe its epidemiology, etiology and the effects of different treatments in patients 65 years and older.

Methods: Retrospective chart review of patients 65 years of age and older with a new onset binocular diplopia presenting between January 2012 and December 2016. Data collected included demographics, etiology of misalignment, alignment in cardinal positions, clinical course and treatment methods.

Results: One hundred and eleven patients were included. The most common type of new-onset strabismus was paralytic (78.3 %) followed by restrictive (12.6%) , decompensated phoria / tropia (6.3%) and divergence insufficiency (3.6%). Among the paralytic group, isolated cranial nerve palsy was most common (57%) and most of them improved within 4 months . All decompensations were documented during 6 months after cataract excision. Of all patients, 13 (11.7%) were candidates for strabismus surgery, but only 53% underwent surgery with complete success rate of 71.4%. Nine percent (10/111) were treated with prisms, from them only five improved.

Conclusions: Paralytic strabismus was the most common cause of diplopia in pateints 65 years and older. Identifying and understanding the different causes of diplopa in this age group may improve prevention, diagnosis and treatment of these patients.

Comparing Hypertropia in Upgaze and Downgaze Distinguishes Congenital from Acquired Fourth Nerve Palsies

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Background: Isolated fourth nerve palsies are commonly caused by decompensation of a congenitally dysfunctional superior oblique muscle. Distinguishing such palsies at initial presentation from palsies caused by presumed microvascular ischemia has value for patient reassurance and in forestalling ancillary testing. Abnormally large vertical fusional amplitudes traditionally have been used to identify decompensated congenital palsies, but that may not be a reliable distinguishing feature. This study was undertaken to determine if the amount of hypertropia in upgaze and downgaze might be a more efficient separator. We also studied traumatic and tumorous fourth nerve palsies to see if they could be distinguished from decompensated congenital palsies by using this hypertropia comparison./h4

Methods: Retrospective review of case records of patients diagnosed with isolated fourth nerve palsies at the University of Michigan Neuro-Ophthalmology Clinics over the past 15 years./h4

Results: Inclusion criteria were met by 118 patients. Hypertropia was equal or greater in upgaze than downgaze in 50 of the 58 decompensated congenital palsies (86%). Hypertropia was never greatest in upgaze in the 15 patients with traumatic palsies. Vertical fusional amplitudes were increased in only 15 of 27 patients (56%) with decompensated palsies. Torsional misalignment on double Maddox rod testing was present in 16 (94%), 13 (87%), and 3 (100%) patients with ischemic, traumatic, and tumorous palsies, but also in 19 patients (54%) with decompensated palsies./h4

Conclusions: Hypertropia greater in upgaze than downgaze or equal in upgaze and downgaze was an efficient separator of congenital from ischemic and tumorous fourth nerve palsies, being characteristic of patients with decompensated congenital palsies and never present in patients with ischemic, traumatic, or tumorous palsies. Vertical fusional amplitudes and torsional misalignment did not effectively differentiate between the patient groups. Comparing the hypertropia in upgaze and downgaze improved differential diagnosis and reduces the potential for unnecessary ancillary tests./h4

Detection of Optic Nerve Head Drusen in Children – Can Enhanced Depth Imaging-Optical Coherence Tomography Replace Ultrasound?

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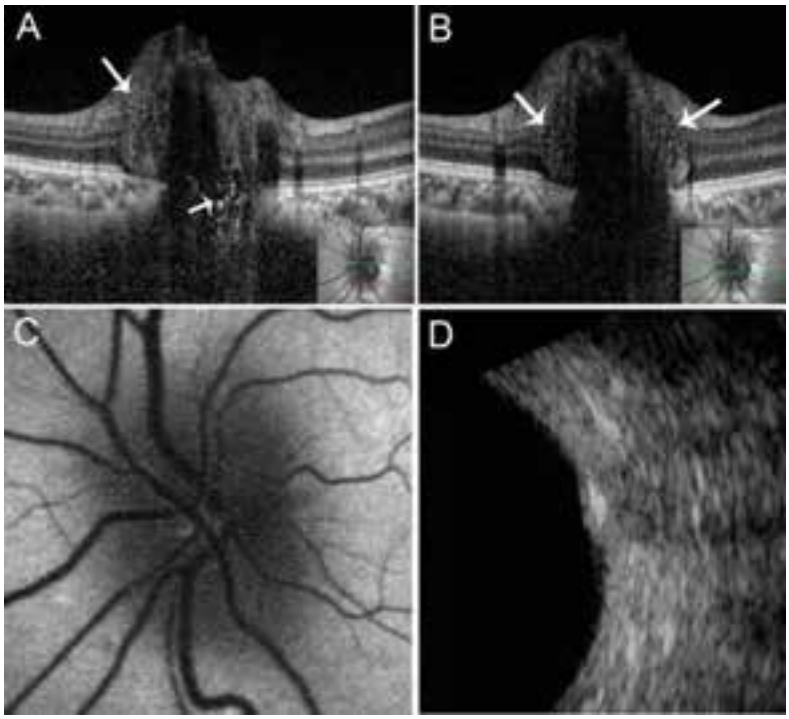
Background: Optic nerve head drusen (ONHD) are the most common cause for pseudo-papilledema in children. The aim of this study was to investigate the detection of ONHD using enhanced depth imaging (EDI) optical coherence tomography (OCT), compare the detection rate between ultrasound B-scan and EDI-OCT, and characterize ONHD structure and morphology in children.

Methods: Retrospective descriptive study including 58 eyes from 29 children. EDI-OCT scans of the optic nerve were reviewed for presence of ONHD, its size, morphologic types, and presence of calcifications. Ultrasound 10MHz B-scans were graded for presence of ONHD, its size and reflectivity. Data from both imaging modalities were compared.

Results: Mean patient age was 8.6±2.6 years. EDI-OCT allowed detection of ONHD in all cases (n=58) while ultrasound detected 56/58 cases (96.6%). On EDI-OCT, all ONHD presented with the peripapillary hyperreflective ONHD type. In addition, 8 eyes (13.8%) showed the granular hyperreflective type, and 6 eyes (10.3%) the confluent hyporeflective type. Confluent hyporeflective ONHD correlated with larger size of the drusen on EDI-OCT (p=0.001). There was no correlation between the morphological drusen type or size on OCT and the size or location of ONHD on ultrasound.



Conclusions: The present study is the first to demonstrate a consistent morphological ONHD pattern on EDI-OCT in a large group of children. EDI-OCT was more sensitive in detection of pediatric ONHD compared to ultrasound and provided structural detailed information that might allow for better follow-up of this pathology.

Cognitive Deterioration in Multiple Sclerosis Patients With Optic Neuritis at Presentation

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Background: Cognitive dysfunction is a known sequela of multiple sclerosis (MS). In this study we aim to compare the prevalence of cognitive functions decline among MS patients presenting with or without optic neuritis (ON) as determined by the Mindstreams® computerized cognitive battery (MCCB).

Methods: Medical charts of MS patients were reviewed retrospectively. Cognitive evaluation scores were compared between presentation and at last follow-up. Score reduction of at least five points was considered clinically significant. Chi-square test was used to compare the prevalence of clinically significant decline between subjects presenting with ON and those with other presentation (NON- group).

Results: Out of 3,070 subjects with MS 177 were found eligible with 1:2 male: female ratio and a mean age at diagnosis and follow-up duration of 33±11 years and 78±31 months respectively. No significant differences were found in baseline parameters between the ON-group (n=27, 15%) and the NON-group (N=150, 85 The prevalence of cognitive decline was significantly higher in the ON-group regarding attention (30.8% vs 12.2%, P=0.031), executive function (33.3% vs 12.3%, P=0.017), and general cognitive score (18.5% vs. 4.1%, P=0.015). Differences remained significant after adjustment according to patient sex, age at presentation, duration of follow-up and education years. Decline was more frequent in the ON-group regarding motor skills (33% vs 17%), information processing speed (20% vs 13%,) and verbal function (30% vs 24%), however these results did not reach statistical significance.

Conclusions: Our results suggest that patients presenting with ON are more influenced cognitively in several fields, compared to patients without ocular presentations. This observation might be explained by recently reported increase in functional connectivity among ON patients which was previously associated with decreased cognitive ability among MS patients. Further prospective and functional studies are needed to clarify these findings.

Syphilis: It's Mean and It's Back...

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Background: Syphilis is a sexually transmitted disease caused by the bacterium Treponema pallidum. Syphilis can present in one of four different stages: primary- a skin lesion, called a chancre, secondary- symmetrical rash, fever, weight loss, and headaches. latent-seropositive without symptoms of disease and tertiary- with cardiovascular, musculoskeletal, or CNS symptoms. Ocular syphilis can involve almost any eye structure- hence the name "the great imitator". This can happen during any of the stages described above. Optic nerve involvement may be unilateral or bilateral and manifest as perineuritis, anterior or retrobulbar optic neuritis or papilledema.

Methods: Review of clinical, laboratory, photographic, and angiographic records of four consecutive patients with neuro ophthalmic manifestations of ocular syphilis presented to the neuro ophthalmology unit at Sheba medical center in the last 10 months.

Results: 4 patients (mean age, 51 [range, 37–65 years]) demonstrated neuro ophthalmic manifestations of syphilis: 2 patients with optic neuropathy, one patient with papilledema and high ICP and one patient with optic disc edema and choroiditis. 2 patients were men who had sex with men (MSM) and 1patient was HIV positive. All patients demonstrated positive serologic findings consistent with syphilis infection. All patients were treated with intravenous penicillin G followed with oral prednisone therapy.

Conclusions: Despite a decade of steady decline, ocular syphilis has reemerged in the past few years. The Centers for Disease Control and Prevention (CDC) is seeing an increase in reports of ocular syphilis with more than 200 new cases over the past 2 years.

Awareness and a high index of suspicion can allow ophthalmologists to play a key role in the early diagnosis and treatment of this potentially fatal disease.

Oculoplastics

Phenotypes of Thyroid Eye Disease and Logic Approach to Bony Orbital Decompression

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Thyroid eye disease is heterogeneous in its underlying pathogenesis, clinical manifestations, and response to medical and surgical treatment modalities. Several previous categorizations of the clinical appearance of thyroid eye disease exist, but they are dichotomous and under-represent the heterogeneity of the disease. We present clinical and radiological features of six different classes or phenotypes of TED. The phenotypes proposed are 1. Congestive (active inflammatory) 2. "White eye" expansion 3. "Hydraulic" apex 4. "White eye" apex 5. Cicatricial active and 6. Cicatricial passive.

The goal of surgical treatment is to expand the bony confines of the orbit to accommodate pathologically enlarged muscles and fat. The literature describing various techniques for decompression is extensive, but there is no consensus on the optimum approach for given degrees of proptosis. We present a practical approach to bony decompression of the orbit in patients with TED, with especial reference to surgical technique.

Inovlutional Ptosis Management: Current Survey of Israeli Oculoplastic Surgeon

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Background: Although numerous studies have reported the benefits of different ptosis procedures, the management of ptosis is complex issue - many different methods of treating ptosis exist, even with the same underlying cause. Moreover, there is no consensus even on the optimal preoperative evaluation strategy of ptosis patients. We administered a national survey to members of the Israel Plastic and Reconstructive Surgeons community to determine current trends of ptosis management in Israel.

Methods: A 12-questions web-based survey was created and an invitation was sent to current members of the Israel Plastic and Reconstructive Surgeons community using the society's e-mail database. This survey was answered in an anonymous fashion. The data were entered in a computerized database.

Results: Thirty two (76.2%, 42 total members) members of Israel oculoplastic surgeon society responded to survey`s questions: Eighty seven percent of the Israel oculoplastic surgeon practice oculoplastic surgery more than 6 years. 43.8% of the members perform more than 75 ptosis surgeries yearly. Most of the members (74.2%) use the Epinephrine test as a routine test for preoperative evaluation, 42% of the members prefer the posterior surgical approach upon anterior surgical approach. The Putterman mullerctomy is the most common used procedure (46.9%) of the posterior surgical approaches. Frontalis sling surgery is performed using a wide variety of materials for suspension; "Ptose up" is the most commonly used (38.7%) by the oculoplastic surgeons of Israel.

Conclusion: Current trends in the management and preoperative evaluation of blepharoptosis by Israel Plastic and Reconstructive Surgeons community revealed a number of interesting common practices that are of value to current practitioners.

Novel In-Office Technique for Visual Confirmation of Demodex Infestation in Blepharitic Patients

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Background: Demodex infestation is a common cause of resistant blepharitis, currently confirmed by Light Microscope (LM) examination of recently epilated eyelashes.

We present a method to confirm Demodex infestation using a Slit Lamp (SL) and common eye clinic equipment.

Methods: The study was conducted at a primary care eye clinic. First, patients were examined by an ophthalmologist, who epilated the lashes, prepared samples and examined it using a SL and 90D lens. Afterwards, all samples were examined by a pathologist under LM. LM examination was considered reference gold standard.

Results: 16 patients with an average age of 59 years were included in the study. 128 epilated lashes were examined.

The mean total Demodex count per patient was 11.75 ± 9.4 mites on SL examination and 16.125 ± 12.4 mites on LM examination. The mean count per lash was 1.47 ± 2.15 mites on SL examination and 2.01 ± 2.86 mites on LM examination. The correlation between SL Demodex count and LM Demodex count was highly positive and statistically significant, both per lash ($r=0.922$, $p<0.01$) and per patient (8 lashes, $r=0.976$, $p<0.01$).

Demodex mites were identified (positive result) both by SL and by LM on 61 lashes (47.7%). No mites were identified (negative result) by both examinations on 56 lashes (43.8%). Meaning that the accuracy of SL examination of a single lash is 91.4%. The SL specificity and sensitivity for a single lash examination were 89% and 94% respectively. Negative Predictive value of a single lash SL examination was 93% ($c2(1)=87.94$, $p<0.01$). All 16 patients (8 lashes per patient) were positive by both SL and LM examinations. Meaning that the accuracy of SL patient examination is 100%.

Conclusions: We proved that Demodex infestation in blepharitic patients with cylindrical dandruffs can be confirmed using a Slit Lamp and common eye clinic equipment.

Ptosis Prevalence Among the Elderly Population Referred to the ER After a Fall

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Background: Falling in the elderly population is a wide spread and well known geriatric syndrome, which may cause various physical, psychological and functional damage, and in some cases my cause death directly. Patients suffering from blepharoptosis slightly tilt their head up, do not see the ground and may stumble and fall more frequently. We believe that the rate of falls and subsequent injury that is caused by the visual disturbance due to Blepharoptosis is much higher than estimated, and the great majority of these cases are undiagnosed, left untreated causing unnecessary morbidity.

Methods: Patients over 60 years old examined in the ER due to a fall were recruited to the study. All cases included underwent a full ophthalmic examination and eyelid examination looking specifically for ptosis and levator function. The prevalence of ptosis in this group was compared to a control group of healthy 60 years old patient examined in the cataract pre-op or post-op clinic.

Results: among 19 patient who had a fall, 14 were diagnosed with blepharoptosis (73.7%) compared to only 4 patients with blepharoptosis in the control group of 16 patients (25%). ($P<0.01$)

Conclusion: Blepharoptosis prevalence among people brought to the ER following a fall was significantly higher than the prevalence in patients in the control group. Ptosis can be easily corrected so it is likely that the risk for a fall would be significantly lower if these patients are identified and fast tracked for surgery at initial presentation.

A Combined Thyroid Eye Clinic- A One Stop Shop

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Purpose: To evaluate surgically induced refractive change (SIRC) and visual acuity change after blepharoplasty with posterior approach ptosis surgery (Müller`s Muscle-Conjunctival Resection - MMCR) versus upper eyelid blepharoplasty alone.

Methods: This is a prospective, comparative, clinical study. Patients undergoing MMCR and blepharoplasty surgeries underwent comprehensive ophthalmic examination including visual acuity and SIRC calculations pre- and 3 months post-operatively. SIRC was calculated with the 10-step Holladay method.

Results: Fifty-six patients participated in the study: 31 in the blepharoplasty group and 25 in the ptosis group. In both groups, most patients showed significant change in SIRC sphere, and SE of more than 0.5D (For blepharoplasty group: 61.29%, 67.74%; For ptosis group: 72.72%, 72.72% respectively). Change was more pronounced for more than 0.5D SIRC-cylinder in patients undergoing combined blepharoplasty and ptosis surgery.

Conclusions: Upper eyelid blepharoplasty with or without posterior approach ptosis surgery is associated with significant SIRC 3 months post-operatively. This may affect decision making for all patients more so for those who seek refractive correction in addition to upper eyelid surgery.

Orbital Mucormycosis: A Report of Cases Treated at a Tertiary Medical Center

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Background: The aim of this study is to describe the experience of a large tertiary medical center with orbital Mucormycosis

Methods: Medical record review of all patients that were diagnosed with orbital Mucormycosis in Sheba Medical Center during 2012- December 2017 was performed

Results: Twelve patients were diagnosed with Orbital Mucormycosis, 11 males (91.6%) and 1 female (8.3%). Seventy-five percent were previously diagnosed with a hematologic disease, 16.6% were unbalanced diabetic and 8.3% suffered from chronic sinusitis. Presenting symptoms were facial pain or headache (50%) and facial swelling (33.3%). Initial Computed Tomography was performed on a median of 0 days from presentation. In 81.1% orbital involvement was noted on the first or following CT/MRI. Cultures for fungus were taken on a median of 2.5 days from presentation, always from the nasal or oral cavities: maxillary sinus (33.3%), nasal septum (16.6%) and middle choncha (16.6%). Cultures usually revealed growth of Rhizopus Oryzae (83.3%). Antifungal treatment was initiated on a mean of 0.3 days prior to microbial diagnosis; 83.3% were treated with Amphotericin B, 25% with liposomal Amphotericin and 16.6% with both agents.

In 44.4% of the cases, both orbits were involved. In 66.6% vision acuity on presentation was 1/60 or less. Most common ocular signs on presentation: eyelid edema (90.9%), limitation of eye movement (75%), pupillary response abnormalities (62.5%), disc pallor/edema (33.3%) and ptosis (27.2%). All patients had NLP vision on last follow up. 91.6% died from the disease or recorded to be sent for a palliative treatment in a hospice.

Conclusions: Mucormycosis is the most common and most virulent fungal disease involving the orbit. In our series the fungus always extended into the orbit from the sinuses or nasal cavity. Patients usually presented with proptosis and an orbital apex syndrome, and had a very poor ocular and survival prognosis.

The Modern Treatment of Low-Flow Venous and Venolymphatic Lesions of the Orbit

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Background: Low flow vascular lesions of the orbit are complex legions that can cause severe disfigurement and in some cases blindness. These lesions are difficult to treat due to their infiltrative nature, making surgical removal problematic and often unsuccessful. Sclerotherapy was introduced as a tool to treat or shrink lesions prior to or as an alternative to surgery. In recent years this form of therapy has gained popularity either as stand-alone therapy or together with surgery.

We will present a case series that examines the outcome of sclerotherapy with and without surgery in the treatment of complicated low flow vascular lesions.

Methods: The case series includes 5 patients with venous or venolymphatic lesions that visited the Belinson Hospital Occuloplastic and invasive radiology clinics between the years 2014 to 2017. All patients underwent perfusion imaging and radiographic guidance. In accordance to the location and size of the lesions, patients were treated either with sclerotherapy (either bleomycin 0 deep leson or 100% alcohol superficial) or with histoacryl glue and surgical excision of the lesion. Posttreatment complications, lesions size (evaluated by orbital imaging and clinical examination), and resolution of signs and symptoms were evaluated after the treatment.

Results: Control and regression of vascular lesions were achieved in all patients. Patients underwent between one to four attempts until cure was achieved.

Conclusions: This report demonstrated that intralesional sclerosing therapy is effective in tumor debulking in patients with orbital vascular lesions, and this modality serves as the modern treatment of choice in these patients.

Improving Outcomes of Posterior-Approach Levatorpexy for Congenital Ptosis With Poor Levator Function

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Purpose: The authors present a follow-on series with continued experience using posterior-approach levatorpexy for congenital ptosis. This technique avoids a skin-incision or any resection or excision of tissue (conjunctiva, Muller's muscle, levator palpebrae superioris (LPS). We report a larger series of patients with poorer levator function (LF) in comparison to our first published report.

Participants: Consecutive series of 16 patients.

Methods: Retrospective, single-centre review of levatorpexy for congenital ptosis performed between 2013-16. Two independent assessors collected clinical data and reviewed patient photographs to report outcomes. Data included lid margin reflex distance (MRD1), pre-tarsal show, contour and complications, including nocturnal lagophthalmos, bothersome lid-lag on downgaze and dry eye. Surgery was considered successful if the following three criteria were simultaneously met: A postoperative MRD1 of ≥2 mm and ≤4.5 mm, inter-eyelid height asymmetry of ≤1 mm, and satisfactory eyelid contour.

Results: Mean age was 10.3 years (range 1–26 years). Mean postoperative follow-up was 12.7 months (8–36 months). Mean levator function (LF) was 7.9 mm (2–14 mm), while 63% had LF≤7mm. Preoperative phenylephrine test was positive in 87.5% of patients. Mean preoperative and postoperative MRD1 was 1.34 mm and 3.2 mm, respectively. The asymmetry of pretarsal show improved from 2.2mm to 0.45mm, postoperatively. Fourteen patients (87%) achieved the desired eyelid height and fulfilled our criteria set for success. Among 10 patients with LF≤7mm, 9 (90%) achieved the desired eyelid height and fulfilled our criteria set for success. Ninety-four percent did not report nocturnal lagophthalmos.

Conclusions: Posterior approach levatorpexy is a useful first-line choice for congenital ptosis with all ranges of LF. It is popular amongst parents due to its avoidance of a skin-incision or any resection or excision of tissue.

A New Concept About Senile Entropion

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Background: Involutional entropion has classically been attributed to the triad of horizontal lower eyelid laxity, dehiscence of the lower eyelid retractors, and an over–riding orbicularis oculi muscle.

Furthermore, age-related enophthalmos and decreased vertical height of the tarsus have also been proposed as an etiological factor. As opposed to permanent entropion, intermittent entropion may go unnoticed by both patient and physician. The current work-up used to diagnose entropion is not always sufficient to uncover the problem.

We present an alternative diagnostic test according to our understanding of the pathophysiology of intermittent entropion. We think that in some cases the most affecting factor of intermittent entropion is dehiscence of the lower eyelid retractors that remain connected only to the conjunctiva. In such patients we request that they look downward in order to uncover the entropion.

Methods: Several case reports are presented showing different situations where the current methods for detecting entropion failed and the diagnosis was made only with an alternative diagnostic test.

Results: Diagnosis of intermittent entropion was simple using the new test.

Conclusions: We present a new understanding of dehiscence of the lower eyelid retractors in manifesting entropion. In some patients with intermittent entropion an easily performed test can reveal the entropion whereas none of the known tests uncover the intermittent entropion.

Neuro-Patch® For Orbital Trapdoor Fractures Repair in Children

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Purpose: The objective of this study is to present the surgical and clinical outcomes of using Neuro-Patch® in orbital trapdoor fracture repair in children. This is the first study reporting the use of Neuro-Patch® to repair orbital fractures.

Methods: A retrospective review was performed on 10 children with orbital trapdoor fracture, who underwent surgical repair in our medical center over 10 years. The trapdoor fracture diagnosis was based on clinical findings and computed topography (CT) scans.

Results: Ten patients were identified with trapdoor fracture. Eight cases were repaired by Neuro-Patch®, and two cases were repaired by Medpor implant. The mean age was 13.6 years and the mean follow-up was 15.9 weeks. All patients had orbital floor fractures. Two fractures involved also the medial wall. Nine cases had inferior rectus muscle entrapped while one had medial rectus entrapped. Three patients had residual diplopia on extreme up gaze after the surgical repair. No patient had enophalmos or infraorbital paresthesia at the end of the follow-up. No post operative complications associated with the used material were reported.

Conclusion: Neuro-Patch® is reliable, safe and effective implant for trapdoor fracture repair in children. Therefore, it can serve as a promising alternative to other synthetic materials, for orbital floor fractures repair.

Update Lecture: 30 Years of PRK: Are We Doing Better?

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The first PRK procedure was done in 1989. During the first years of PRK, in myopia of less than 6.00 –D, the outcome of UCVA was 6/12 or better in 90% of the procedures. In 80% of those with myopia between 6.00 – to 9.00– D, the UCVA was 6/12 or better. Of the treated patients 2-3% lost lines BCVA, mainly due to corneal haze/scars or irregularity, and there was no treatment for astigmatism.

During the last 29 years there were remarkable improvements in laser technologies and our understanding of PRK procedure and the postoperative wound healing. The post-PRK outcome dramatically improved. In myopia of less than 6.00–D: 98-100% gain UCVA of 6/12, over 90% gain UCVA of 6/6 or better and more than 50% see better than 6/6. Dramatic improvement was also reported in high myopia between: 6.00 – to 10.00– D or more. High astigmatism is treatable and less than 1% loose lines of BCVA.

Nano-drops for Correcting Refractive Errors

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Background: To investigate the ability of eye-drops filled with synthetic nanoparticles with particular optical properties to correct various range of refractive errors

Methods: Experimental study analyzing the refractive changes of 10 pig eyes after instillation of eye-drops filled with synthetic nanoparticles through a predetermined optical pattern stamped onto the corneal epithelium. Refraction was measured with a handheld automated refractometer before the pattern stamping, after the pattern stamping and every 15mn after instillation of the eye-drops for two hours. The magnitude of the refractive change, the corneal refractive index, and the corneal shape modification have been recorded as well as an electronic microscopic examination in order to identify and analyze the distribution of the nanoparticles inside the cornea.

Results: A mean spherical equivalent correction of 2,24 +/- 0.07D has been achieved for myopic refractive error testing, whereas a correction of 2,74+/-0.4D has been achieved for the hyperopic refractive error. No statistically significant changes (p = 0,6 and 0,5, respectively for myopic and hyperopic testing) have been observed in the corneal central keratometry. Encapsulated hypereflective nanoparticles of 0.68nm diameter on average were observed throughout the first 60 microns of the corneal thickness.

Conclusion: Eye-drops filled with synthetic nanoparticles have shown promising potential for a non-invasive alternative for the correction of refractive errors.

Visual Outcome and Patient Satisfaction Following Unilateral Refractive Lens Exchange With a Multifocal Intraocular Lens in Emmetropic Presbyopic Patients

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Purpose: To evaluate the visual outcome and patient satisfaction after a unilateral multifocal IOL implantation in emmetropic patients with presbyopia.

Methods: Retrospective case-series. A unilateral Phacoemulsification with Femto-laser assisted cataract surgery (FLACS) and refractive lens exchange (RLE), followed by an implantation of a trifocal diffractive intra ocular lens (IOL) (FineVision Micro F), was performed on the non-dominant eyes of emmetropic patients with presbyopia. After 6 months of follow-up, the main outcome measures were uncorrected distance visual acuity (UDVA), uncorrected intermediate visual acuity (UIVA), and uncorrected near visual acuity (UNVA). Secondary outcomes included spherical equivalent (SE), refraction, defocus curves, contrast sensitivity, patient questionnaire and presence of visual side effects.

Results: A total of 26 eyes of 26 patients, with an average age of 53.8±4 years, were included in this study. Preoperative mean UDVA was 0.13±0.04 logMAR, UIVA was 0.46±0.12 logMAR, and UNVA was 0.66±0.17 logMAR,postoperative mean UDVA of 0.18±0.32 logMARUIVA of 0.17±0.21 logMARUNVA of 0.02±0.10 logMAR (p0.05). Monocular UNVA of 20/25 or better in the operated eye was achieved in 23 (88%) patients. Twenty-four (96%) patients said they will recommend this procedure to family and friends. There were no intraoperative complications and no IOL exchange was required.

Conclusions: A unilateral RLE of the non-dominant eye with FLACS and a trifocal diffractive IOL (FineVision Micro F) implantation in emmetropic, presbyopic patients is a safe procedure which provides excellent distance, intermediate, and near visual outcomes.

Long-Term Outcomes of Presbyopic Correction in Hyperopic Patients Using the Supracor Presbyopic LASIK Algorithm

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Background: The Supracor (Technolas) Excimer laser software (PresbyLASIK) is used for correction of presbyopia in hyperopic patients. The purpose of this study is to evaluate long-term outcomes of these patients.

Methods: A retrospective review of presbyopic patients treated with Supracor applying the "mild" software in the dominant eye and the "regular" software in the non-dominant eye. Data was abstracted on uncorrected distance and near visual acuity (UDVA, UNVA), refraction and additional surgical procedures.

Results: We identified 74 consecutive eyes from 37 hyperopic patients (+0.50 D to +3.00 D) with a mean age of 51.2±4.8 years. The mean follow-up was 10 months (4 to 45 months). All surgeries were uneventful. Postoperative monocular UDVA was significantly better in the dominant eyes vs. non-dominant eyes (LOGMAR 0.21, 0.47, respectively (p=0.003)). Postoperative monocular UNVA was significantly better in the non-dominant eyes vs. dominant eyes (J13, J3, respectively (p=0.008)). There was a significant improvement in binocular postoperative UDVA (from 0.48 to 0.15 (p0.001)) and UNVA (from 12 to 1.80J (p0.001)). Zero patients had J1 at baseline, while 21 (70%) had J1 or better at follow-up. Eight patients required enhancement, one of them in both eyes. All patients had a final binocular UDVA of ≥0.04 and 70% had binocular UNVA ≥J1.

Conclusion: Supracor PresbyLASIK for hyperopic patients is a viable option for correcting near visual acuity. To maximize the distance visual acuity, a combination of full correction by Wavefront-guided FemtoLASIK in the dominant eye and Supracor PresbyLASIK in the non-dominant eye is advisable.

Vision Improvement in Presbyopic Pilots Following Perceptual Learning

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Background: Israeli Air Force (IAF) pilots continue flying after the onset of presbyopia. Because modern pilots need to read maps and see instrument displays, often under conditions of low luminance, good near vision is necessary in the cockpit. The usual solution to presbyopia is requiring pilots to fly with bifocal spectacles, which may be cumbersome. Previous studies have shown that perceptual learning can improve presbyopia. We undertook this study to assess whether perceptual learning could significantly improve presbyopia and visual tasks related to aviation in a cohort of IAF pilots.

Methods: Participants were selected by the IAF Aeromedical Unit as having at least initial presbyopia and were trained using a structured personalized perceptual learning program (GlassesOff® application). This program was based on detecting briefly presented low-contrast Gabor stimuli, under conditions of spatial and temporal constraints, from a distance of 40 cm.

Results: Prior to perceptual training, pilots had significantly higher visual processing speed than age-matched controls. Perceptual training improved basic visual functions including static and temporal visual acuity, stereoacuity, spatial crowding, contrast sensitivity and contrast discrimination. Moreover, higher-level tasks, such as sentence reading and aerial photography interpretation (specifically designed to reflect IAF pilots' expertise in analyzing noisy low-contrast input) improved.

Conclusions: Perceptual training appears to improve visual function, especially visual processing speed, in presbyopic pilots. Further study is necessary to assess whether this improvement in near vision translates into improved flight performance.

FS-LASIK Versus Trans-PRK for the Correction of High Grade Astigmatism (≥2.0D Cylinder)

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Background: Correction of astigmatism, and particularly high grade ones, is considered more challenging and less effective than the treatment of plain spherical refraction. Our aim was to examine and compare the safety, efficacy predictability and clinical outcomes of Femtosecond laser assisted in situ keratomileusis (FS-LASIK) and Trans epithelial photorefractive keratectomy (Trans-PRK) procedures performed for the correction of high astigmatism (≥2.0D cylinder).

Methods: A Retrospective cohort study was performed. The study reviewed medical files of patients who underwent Trans-PRK and FS-LASIK surgeries for the correction of high astigmatism (≥2.0D) between the years 2013-2014. The FS-LASIK group comprised of 93 eyes, and 186 eyes were examined in the Trans-PRK group. The pre-operative Spherical equivalent (SE) for FS-LASIK was -3.65±2.05 and -4.99±2.46 for Trans-PRK ($p<0.001$), and the pre-operative cylinder was -2.76±0.79 and -2.72±0.84, respectively ($p=0.732$).

Results: There were no statistically significant differences between FS-LASIK and Trans-PRK in both post-operative SE (-0.1±0.7 and -0.11±0.7, respectively, $p=0.958$) and post-operative residual cylinder (-0.79±0.54 and -0.82±0.63, respectively, $p=0.685$), as the results were almost identical. However, Trans-PRK was associated with worse outcomes compared to FS-LASIK in both the safety (0.89±0.21 and 1.03±0.17, respectively, $p<0.0001$) and efficacy (0.86±0.22 and 1.00±0.18, respectively, $p<0.0001$) indices. These results remained significant in multivariate analysis after correcting for age, gender, preoperative refractive error and pachymetry. FS-LASIK was also superior to Trans-PRK in the percentage of eyes achieving an uncorrected vision of 20/40 or better (98.9% and 91.4%, respectively, $p=0.013$), though this did not remain significant after the above-mentioned multivariate analysis.

Conclusion: Although both procedures achieved a desirable post-operative SE, FS-LASIK showed vast superiority over Trans-PRK for the correction of high-grade astigmatism (≥2.0D cylinder).

Risk Factors for Epithelial Ingrowth following Microkeratome-Assisted LASIK

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Purpose: To analyze the incidence and risk factorsassociated with epithelial ingrowth following uncomplicated microkeratome-assisted LASIK.

Methods: Patients who underwent microkeratome- assisted LASIK procedure between January 2006 and December 2014 in a single surgical center were reviewed. Epithelial ingrowth cases were identified and associated factors were assessed.

Results: Overall, 149 (0.49%) of 30,574 cases developed epithelial ingrowth. The epithelial ingrowth group was older compared to controls (35.3 ± 12.3 vs 31.7 ± 10.3 years, P = .001), and higher percentage of moderate to high hyperopia (13.7% vs 5.3%, P < .001), early postoperative flap slippage requiring flap repositioning (9.4% versus 2.8%, P < .001), flap lifting for enhancement (48.6% vs 4.3%, P < .001), were treated with a smaller optic zone (6 mm) (37.7% vs 15.2%, P < .001), with Moria M2 microkeratome(70.1% vs 55.5%, P = .02), by low volume surgeons (n < 1,000) (5.8% vs 1.3%, P < .001), in a lower operating room temperature (22.3 ± 1.8 vs 22.8 ± 1.6, P = .005), and with a greater maximum ablation depth (67.3 ± 29.7 vs 57.3 ± 30.3, P < .001). There was a high incidence of epithelial ingrowth in the enhancement group (4.8% vs 0.2%, P < .001). The time between treatments (primary and enhanced LASIK) was significantly greater in the epithelial ingrowth group (mean: 1,110 ± 870 vs 626 ± 662 days, P < .001). There was a significant rise in epithelial ingrowth rates as time between primary and enhancement LASIK increased, peaking at 4 to 5 years (P < .001). In multivariate analysis, flap lifting for enhancement (odds ratio [OR] = 19.5, P < .001), 6-mm optic zone (OR = 2.2, P < .001), moderate to severe hyperopia (OR = 2.4, P = .005), greater ablation depth (P < .001)AQ1, and low volume surgeon (OR = 3.9, P = .01) were associated with epithelial ingrowth (total R2 = 15.4).

Conclusions: The potential risk factors describe above may forewarn surgeons as to which individuals merit closer observation for this complication.

Laser Vision Correction for Residual Refractive Errors in Eyes Implanted With Multifocal Intraocular Lenses

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Background: Residual refractive errors after cataract surgery may affect the visual outcomes and patient satisfaction, especially when multifocal intraocular lenses (MFIOL) are implanted. Laser vision correction (LVC) has been proposed as an option for the correction of these errors.

In this study we aimed to evaluate the efficacy of laser enhancement to correct residual refractive errors following cataract surgery with MFIOLs, in eyes with or without previous LVC.

Methods: In this retrospective comparative analysis we included eyes that had undergone cataract surgery with MFIOL, and the residual spherocylindrical error was treated with LVC. Data was abstracted on corrected distance visual acuity (CDVA), uncorrected distance visual acuity (UDVA), spherical equivalent (SE) and cylinder pre- and postoperatively. In addition, comparison was performed between eyes with or without previous LVC prior to the cataract operation.

Results: We identified 24 consecutive eyes; 11 eyes with a history of previous LVC (Group A) and 13 eyes without a previous LVC (Group B). At 6-month follow-up, a significant improvement in UDVA was achieved, between preoperative (0.45 ± 0.27 and 0.38 ± 0.21) and postoperative UDVA (0.17 ± 0.14 and 0.28 ± 0.18, respectively). A significant reduction was also observed in spherical equivalent (0.31 ± 0.82 and -0.23 ± 0.77) preoperatively and (-0.19 ± 0.43 and -0.08 ± 0.66) postoperatively. A reduction in cylinder was also noted in both groups (-1.10 ± 0.98 and -0.88 ± 0.58) preoperatively and (-0.38 ± 0.39 and 0.38 ± 0.29) postoperatively. When comparing eyes undergoing hyperopic and myopic laser correction in each group, an improvement in all of the parameters was also noted in each of the subgroups.

Conclusion: Excimer laser refinement of the refractive errors after cataract surgery is a safe and effective method in eyes with or without previous laser treatment. An accurate refractive outcome was achieved in eyes that underwent laser vision treatment in the past. No difference was noted between the myopic or hyperopic laser correction subgroups.

Risk Factors for Sporadic Diffuse Lamellar Keratitis Following LASIK: A Retrospective Large Database Analysis

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Background: In corneal refractive surgery, there are several intraoperative and postoperative complications that are unique to Laser-assisted in situ keratomileusis (LASIK), most of which are related to the corneal flap. Postoperative complications include dislocated flaps, striae and folds, epithelial ingrowth, infectious keratitis and diffuse lamellar keratitis (DLK). DLK is one of the more potentially devastating complications which in its more advanced stages include flap melting. We aimed to determine factors associated with sporadic DLK following LASIK.

Methods: This large database study included consecutive cases of LASIK performed between 2007 and 2016. Patients were divided into 2 groups according to whether or not they subsequently developed DLK.

Results: A total of 24,026 eyes of 12,013 patients, mean age 32.9 ± 10.3 years were included. Post-LASIK DLK developed in 464 eyes (1.9%) and the annual rate decreased from 7.1% (2007) to 1.7% (2016) ($p<0.001$). The DLK group had a higher proportion of males (58.5% versus 52.1%, $p=0.006$), a greater preoperative central corneal thickness (549.5 ± 32.6 versus 545.3 ± 30.5µm, $p=0.005$) and a lower proportion of high astigmatism (>3D) (0.4% versus 1.6%, $p=0.05$). The DLK group had a higher proportion of prior LASIK treatment (2.8% versus 1.3%, $p=0.006$), Moria M2 (rather than SBK) microkeratome (71.1% versus 34.0%, $p<0.001$), smaller suction ring number ($p<0.001$), greater stop size ($p<0.001$) and greater flap thickness (119.2 ± 50.4 versus 110.8 ± 22.2, $p=0.007$). In multivariable analysis, a smaller suction ring number (OR 0.89, $p=0.04$), Moria M2 microkeratome (OR 5.26, $p<0.001$), larger optic zone (OR=2.04, $p=0.01$) and higher spherical equivalent (OR=1.08, $p=0.02$) were associated with DLK.

Conclusions: In the modern LASIK era the incidence of DLK continues to decrease. Higher preoperative ametropia, smaller suction ring number, an older type of microkeratome and larger optic zones are associated with higher DLK rates following LASIK.

Ocular Oncology

Update Lecture: Cell Immunotherapy With TILS as a Potential Treatment for Metastatic Uveal Melanoma

Guest Speaker: Jacob Schachter, Ella Lemelbaum, Institute of Immuno-Oncology, Sheba Medical Center, Tel-Hashomer, Israel

Metastatic uveal melanoma is resistant to chemotherapy and radiation. Immunotherapy with check point inhibitors is marginally active. Cell therapy is a potential active immunotherapy in this malignancy as it has shown activity in 30% of the patients treated with TIL (tumor infiltrating lymphocytes) in a study done at the NCI.

Ophthalmic Manifestations in Patients With Multiple Myeloma

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Background: The ophthalmic manifestations of multiple myeloma (MM) can be seen in practically every ocular structure. Ocular findings may be the first manifestations of the disease. It may also occur as one of the extramedullary manifestations of the disease or as the first sign of insufficient chemotherapy. Multiple myeloma may cause ocular pathology by direct infiltration or as extramedullary plasmacytomas resulting in displacement or compression of tissues, by causing hyperviscosity syndrome, and by immunoglobulin light chain deposition in ocular tissues.

The aim of the study is to outline the ophthalmic manifestations of multiple myeloma in our center.

Methods: All the cases examined with eye manifestations and have had diagnosed with multiple myeloma were included. Revised were the files of all patients with MM without ocular symptoms in the hematology outpatient clinic, from 2010 till 2017.

Results: Overall 120 patients were diagnosed with MM, 5 of them with ocular involvement. There were 2 women and 3 man, at the ages of 64-83, demonstrating proptosis, ptosis, diplopia, optic neuropathy and autoimmune retinopathy.

Conclusion: Ophthalmic manifestations in multiple myeloma patients are relatively rare, but can involve any structure of the eye. It might be induced by the disease or secondary to side effect of the new treatments. Physicians should be aware to ocular involvement.

Neoadjuvant Intraarterial Cytoreductive Chemotherapy in Lacrimal Gland Adenoid Cystic Carcinoma

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Background: Lacrimal Gland Adenoid Cystic Carcinoma (LGACC) is a rare, life-threatening tumor often not diagnosed until advanced stages. This malignancy usually presents with nonspecific symptoms such as periocular pain and non-axial proptosis. We present a rare case of a 33 year-old female that arrived to our ocular oncology unit 12 months after she was diagnosed with CRIBRIFORM TYPE LGACC in Russia during her pregnancy.

Methods: An orbital magnetic resonance imaging study performed due to her previous diagnosis and a progressive proptosis, disclosed large soft tissue mass extending the upper half of the right orbita up to the superior orbital fissure.

Results: The patient underwent one cycle of intraarterial cytoreductive chemotherapy with cisplatin and systemic chemotherapic adriamycin followed by orbital exenteration superior orbital fissure dissection and radiation therapy. A six months follow-up PET-CT and MRI showed no recurrency.

Conclusion: In patients presenting an infiltrative mass in the orbital apex, a multimodal treatment can be an effective strategy in improving disease control and survival in lacrimal gland adenoid cystic carcinoma.

Primary Photodynamic Therapy With Verteporfin for Pigmented Posterior Pole cT1a Choroidal Melanoma: A -3Year Retrospective Analysis

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Background: Conservative treatments currently used for choroidal melanoma achieve good tumor control, but compromise vision in the majority of cases. The efficacy and safety profile of photodynamic therapy (PDT) as a treatment alternative for small pigmented posterior pole choroidal melanoma is not clear. We aimed to investigate the outcomes of primary PDT for pigmented posterior pole cT1a choroidal melanoma.

Methods: Retrospective interventional consecutive case series of 26 patients (26 eyes) with pigmented posterior pole cT1a choroidal melanoma, who were treated with 3 sessions of PDT and followed-up thereafter.

Results: Included were 11 males and 15 females that presented at a median age of 66 years (mean: 64) with transformed naevi (n=11) or suspicious lesions (n=15) with ≥3 risk factors for growth, with lipofuscin in all. In all cases, diagnosis was clinically based (no tissue biopsy). Tumour control was achieved in 16 (62%) patients in a median follow-up time of 29 months (mean: 27). Ten patients failed treatment by form of radial expansion, diagnosed in a median time of 13 months (mean: 12) from last treatment. By Kaplan-Meier analysis, success rate after 1, 2 and 3 years was 85%, 59% and 51%, respectively. On statistical analysis, number of suspicious features was found to be the only risk factor predicting failure (p=0.046). One patient developed macula-sparing branch retinal artery occlusion after treatment. Following PDT, subretinal fluid resolved in all cases and visual acuity significantly improved in all treatment-success cases (p=0.043). There were no cases of metastatic spread.

Conclusion: Primary PDT resulted in tumour regression of small, pigmented choroidal melanoma in 62% after a mean of 27 months. Treatment was more effective in tumours with 3 or less risk factors for growth, and resulted with fluid elimination and significant improvement in vision in treatment-success cases.

Comparison of the Specificity and Sensitivity of the Different Diagnostic Modalities for Vitreoretinal Lymphoma

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Purpose: To evaluate the efficacy of the different diagnostic tests for vitreoretinal lymphoma (VRLy).

Methods: A retrospective analysis of all the patients who were examined under the presumed diagnosis of VRLy that were evaluated in the ocular oncology service of Hadassah Hebrew Universality Medical Center since March 1997. Vitreous samples were analyzed for cytology, PCR for IgH gene rearrangement, and cytokine levels of IL-10 and IL-6. Diagnosis was determined by a combination of the clinical findings, the analysis of the vitreal samples, and the diagnosis of a PCNSL. Descriptive statistics were analyzed with JMP statistical package.

Results: Cytology was available for 130 patients and showed malignant cells in 53 patients (40.8%). The negative readings included necrotic cells (4), small lymphocytes (39), inflammatory cells (13), and non-diagnostic samples in 22 patients. PCR for IgH monoclonality was available for 90 patients and was positive in 30 patients (33.3%). Cytokine levels of IL-10/IL-6 were available for 112 patients. The ratio was higher than 1 for 49 patients (43.8%). The mean (± SD) IL-10/IL-6 ratio for the positive patients was 74.7 ± 131.3, median 22.8, range 1.2 – 590.8. The negative values ranged from 0.003 to 0.9. All three tests were available for 79 patients. The sensitivity, specificity, positive and negative predictive values in this group were: cytology: 76.7%, 93.2%, 74.2%, and 85.4%; PCR: 42.9%, 81.8%, 65.2%, and 64.3%; Cytokines: 88.6%, 81.8%, 79.5%, and 90.0%.

Conclusions: IL-10/IL-6 ratio is more accurate than either cytology and PCR in the diagnosis of VRLy.

Cataract

Optical Coherence Tomography for Routine Preoperative Macular Pathology Screening in Patients Scheduled for Cataract Surgery

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Background: Cataract surgery has made major advances in the past decades, resulting in higher visual outcomes. Consequently patient's expectations are continuously rising. Currently, dilated clinical fundus examination is the standard of care for preoperative evaluation of the macula. However, preoperative identification of macular diseases, particularly in the presence of media opacities, remains a challenge for ophthalmologists.

In this pilot study, we aim to assess the efficacy of spectral-domain optical coherence tomography (SD-OCT) as a strategy for identifying macular disease in patients scheduled for cataract surgery.

Methods: Preoperative Heidelberg Spectralis SD-OCT (Heidelberg Engineering, Heidelberg, Germany) scans were performed on 101 consecutive patients scheduled to have routine cataract surgery in our institution. Scans were reviewed by a retinal specialist for detection of macular pathology.

Results: One hundred and one eyes from 101 patients (53 females, age: 72.0 ± 11.6 years) were reviewed. Fifty six had been referred from Kupat Holim (KH). Seven OCT scans were non interpretable due to advanced cataract. Fifty three (52.5%) were found to have single or several macular pathologies. Pathologies included age-related macular degeneration (N=25), cystoid macular edema (N=8), epiretinal membrane (N=14), high myopic changes (N=8), macular hole (N=3) and central serous chorioretinopathy (N=1). OCT revealed previously unnoticed pathology in 35 patients. The management of 4 patients was changed due to OCT detected pathology. Clinically overlooked pathology rate was 75.9% in patients referred from KH and 52.0% in patients referred from our clinics (p=0.20).

Conclusions: SD-OCT examination is a useful preoperative modality for detecting macular pathology in patients scheduled for routine cataract extraction surgery. This noninvasique widely available technique may become part of standard preoperative care as it enables better matching of expectations and sometimes modify the management.

A Comparison Between Multifocal, Extended Depth of Field & Monofocal Intraocular Lenses

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Purpose: To assess visual outcomes and patient's satisfaction of multifocal and extended depth of field intraocular lenses (IOLs) in comparison to monofocal IOL implantation with and without monovision.

Setting: Ein Tal Eye Center, Tel Aviv, Israel

Methods: Consecutive patient's records who underwent bilateral IOL implantation following cataract extraction surgery and had 1 month postoperative manifest refraction, were reviewed. Spectacle independence, patient satisfaction, and photic subjective phenomena were analyzed using a questioner survey. Four groups of IOLs were selected: (1) extended depth of field IOL, (2) trifocal IOL, (3) monofocal IOL, and (4) monofocal IOL using the mono-vision method.

Results: The extended depth of field IOL group comprised 38 patients and the other groups 50 patients. The mean postoperative uncorrected distant, intermediate and near visual acuities (LogMAR) were: 0.07±0.10, 0.08±0.13 and 0.23±0.15 (extended depth of field IOL); 0.07±0.09, 0.08±0.11 and 0.06±0.08 (trifocal IOL); 0.17±0.14, N/A and N/A (monofocal IOL); and 0.08±0.12, N/A and 0.07±0.12 (monovision). 95%, 96%, 48% and 80% of patients respectively, reported to be distant spectacles independent . 87%, 96%, 4% and 80% did not require intermediate range visual aid. 55%, 86%, 36% and 52% were spectacles independent for near vision. 13%, 38%, 2% and 6% of the patients reported experiencing postoperative halos or glare. 72%, 76%, 56% and 72% were satisfied with their IOLs and would choose them again.

Conclusion: Trifocal IOLs are more effective at improving intermediate and near vision relative to extended depth of field and monofocal IOLs. However, patients with trifocal lenses reported more glare and haloes. Our data suggest that refractive outcomes outweigh the adverse effects of multifocal IOLs, resulting in a high overall satisfaction score. Motivation to achieve spectacle independence is likely to be the deciding factor.

Clinical Experience and Comparison of Trifocal and Trifocal-Toric Intraocular Lenses (IOLs)

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Background: The purpose of the study was to report the visual outcomes and accuracy of power calculations of trifocal and trifocal-toric intraocular lens (IOLs).

Methods: Consecutive cases of eyes that had undergone successful cataract surgery with implantation of a trifocal or trifocal-toric IOL (FineVision Micro F and POD FT, PhysIOL, Belgium) by a single surgeon were enrolled. Preoperative evaluation included complete ophthalmic examination, biometry measurement using the Lenstar-LS900, corneal topography and tomography and retinal optical coherence tomography. IOL power was calculated using 3rd and 4th generation formulas. Manifest refraction and the distant, intermediate and near visual acuities (UCDVA, UCIVA and UCNVA, respectively) were recorded at the 1-month postoperative visit. Optimized constants were back calculated in order to achieve higher accuracy in power calculation.

Results: 100 trifocal and 50 trifocal–toric IOLs were analysed. UCDVA was 6/9 or better in 90.0% and 92.0% of eyes, UCIVA was 6/9 or better in 82.4% and 95.8% of eyes and 85.9% and 87,8% of eyes achieved UCNVA of J1 or better, respectively. No significant differences between the groups were found in UCDVA, UCIVA and UCNVA. In contrast, a statistically significant difference in the postoperative spherical equivalent was found between the two groups (-0.27±0.25D vs. -0.15±0.27D, respectively, P=0.007). In addition, higher residual cylinder was found in the trifocal group (0.52±0.37D vs. 0.32±0.24D, P=0.001). Both differences were below the clinical threshold of the refraction examination (0.25D). The median error in the predicted refraction ranged from 0.22D to 0.27D (trifocal) and from 0.25D to 0.27D (trifocal-toric) using the manufacturer's suggested constantans. Implementing the optimized constants lowered the median refractive error by up to 0.07D.

Conclusions: The FineVision trifocal and trifocal-toric IOLs provide excellent visual correction for all distances: far, intermediate and near. Optimized constants, which may further improve refractive results, are suggested.

Our Experience With the Assiancor in 6 Eyes of Marfan Patients

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Background: Subloxated lens are one of the highest surgical challenges. The Assianchor developed to support the anterior capsule and to enable safe surgery while preserving the capsular bag.

Methods: Retrospective report of 6 consecutive eyes of 3 patients with Marfan syndrome and subloxated lens that underwent lnsectomy with IOL implantation using the Assianchor. Data were collected on intra and post-operative complication, distance visual acuity, refraction pre and post-operative and IOL stability and centration.

Results: Six eyes of 3 young male patients with Marfan syndrome and significant superior subluxation of the crystalline lens were included. All the lenses were clear. Average pre-operative uncorrected distance visual acuity (UDCVA) was 0.7+0.1 LogMAR. Average pre-operative best-corrected distance visual acuity (BCDVA) was 0.4+0.2 LogMAR. Average preoperative spherical equivalent was -7.3+12.8 D and the average astigmatism was 7.2+3.5 D. In the first surgery, the capsular bag was torn and the IOL was fixated to the anchor and the iris, the other 5 surgeries were uneventful with in the bag implantation of the IOL. One Assianchor was used in all the cases. Post-op follow up time ranged from 2-18 months (mean 6.5 months). Average post-operative UCDVA improved to 0.43+0.29 LogMAR and BCDVA improved to 0.2+0.08 LogMAR. Average post-operative spherical equivalent reduced to -0.5+0.45 D and the average astigmatism reduced to 1.3+1.6 D. All the IOLs were stable and well centered except to the first IOL that demonstrated slight temporal subluxation.

Conclusion: The Assianchor is an easy and safe tool in the treatment of subloxated lenses with short learning curve.

Outcomes of Multifocal IOL Implantation in Cataract Patients With and Without Previous Refractive Surgery

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Background: Since LASIK was introduced about three decades ago, an estimated 28 million LASIK surgeries have been performed worldwide, and more than 500,000 of those surgeries were performed in Israel. Many of the patients who had refractive surgery 20 years ago have now reached the age of cataract surgery and seek to continue their spectacle independence. However, patients who have had refractive surgery frequently experience increased optical aberrations, with the cornea itself often becoming multifocal in nature. Placing a multifocal intraocular lens (MFIOL) IOL behind a multifocal cornea may run the risk of a reduction in visual quality.

Methods: This is a retrospective compression case series of the cataract surgeries implanted with a MFIOL. Data was abstracted on uncorrected and best corrected visual acuity (UCVA, BCVA). Eyes were analyzed for a comparison between naïve and post-refractive surgery eyes.

Results: We identified 1200 consecutive cataract surgeries: 800 were naïve eyes (group 1) and 400 had previous refractive surgery (group 2). All cataract surgeries were Femtosecond laser-assisted (Lensx or Victus) and performed by a single surgeon. All MFOLs were manufactured by Fine Vision (Physiol). The formula used was the "Levinger Formula", which is a modification of the SRKT formula. At 1 month postoperatively, the UCVA was 0.18 (logMAR) in group 1 and 0.23 in group 2 ($p=0.1$). At that time, there was a negative effect of age in both groups ($r= 0.14$ $p= 0.04$). Near UCVA was 2.01 in group 1 and 3.71 in group 2 ($p<0.001$). BCVA was 0.09 and 0.12 in group 1 and 2 respectively ($p=0.06$).

Conclusion: Implantation of a MFIOL in cataract surgery in eyes with previous refractive surgery is a viable option achieving good distance UCVA, with the understanding that there is a slight limitation of near UCVA.

Femtosecond Laser-Assisted Cataract Surgery in a Public Hospital Setting in Israel

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Background: To evaluate the efficiency and practicality of femtosecond laser assisted cataract surgery (FLACS) vs conventional phacoemulsification cataract surgery (CPCS) in a public hospital setting in Israel.

Methods: A prospective single-center randomized study. Patients for cataract surgery were assigned to FLACS (study group) or CPCS (control group) of their choice. Cataracts were graded using the Lens Opacities Classification System III system. The laser procedure was done on the same surgical table as the surgery. Outcome measures included total surgery duration, effective phaco time (EPT), postoperative best corrected visual acuity (BCVA) recorded at 1 week and then at 1,3 and 6 months after surgery, and complications.

Results: 172 patients (172 eyes) underwent either FLACS (128) or CPCS (44). Mean age was 70.7±8.8 years and 71.7±11.6 years in the study and control group respectively. No differences were observed in the preoperative mean cataract grades. FLACS took longer than CPCS with a mean difference of 3.7 ± 3.2 minutes .The mean EPT was 12.9±9.5 s` in the study group and 15.3±9.1 s` in the control group (p=0.09). Posterior capsular tears were more common in the study group (5%) than in the control group (2.2%).

Conclusion: The efficiency of FLACS and CPCS were comparable and the small increase the total surgical duration is negligible in a workflow of a public hospital setting. Although it has not been addressed in this study, the real advantage of FLACS is in complex cataract cases that are a significant part of the operations in the in the public system. The cost to benefit ratio should be debated.

Anterior Lenticonus in Alport Syndrome

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Purpose: To report the intraoperative challenges and postoperative outcomes of cataract extraction and intraocular lens implantation in 4 eyes of 2 siblings with anterior lenticonus.

Methods: Interventional case series.

Results: Two siblings presented to the outpatient clinic of Rabin Medical Center, with a slowly progressive bilateral vision loss accompanied by halos and nighttime glare. Their best spectacle corrected Snellen visual acuity was less than 6/30. Their refraction showed high myopia along with lenticular astigmatism. Retinoscopic examination showed a central oil droplet-like opacity in the anterior part of their lens. A slit lamp examination along with Scheimplug imaging and anterior slit lamp photography showed anterior conical protrusion of the central part of the crystalline lens consistent with anterior lenticonus. Corneal topography and specular microscopy imaging were unremarkable. No associated dot-and-fleck retinopathy or posterior polymorphous corneal dystrophy were found. All eyes have undergone cataract extraction surgery with intraocular lens implantation with resolution of their preoperative symptoms and with satisfactory postoperative visual outcomes.

Conclusions: Increased elasticity and fragility of the anterior lens capsule along with significant thinning of the central anterior capsule is to be expected during cataract extraction surgery for anterior lenticonus in Alport syndrome. This makes cystotome puncture of the anterior capsule more difficult along with higher risk for capsulorrhexis run off. This should be acknowledged by the anterior segment surgeon prior to surgery.

Cataract Surgery and Visual Outcome in Patients Older Versus Younger than Ninety Years of Age

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Background: To evaluate visual outcomes and complications of cataract surgery in patients 90 years and older vs. patients 50–89 years old.

Methods: **A retrospective cohort study evaluating complications and visual outcomes of cataract surgery.** Fifty-three patients ≥90 years old (92.6±3.0) and 140 patients ≤89 years old (75.2±7.6) were matched by systemic co-morbidities. Demographic data, systemic and ocular co-morbidity, intraoperative complications, and preoperative and postoperative visual acuity (VA) up to 1 month post-surgery were recorded.

Results: A significant difference was found regarding alpha antagonist treatment (2.9% in the ≤89 vs. 13.2% in the ≥90 group, p=0.01), cumulative dissipated energy (CDE) (16.09±10.7 in the ≤89 vs. 24.99±22.4 in the ≥90 group, p=0.01), risk of intraoperative floppy iris syndrome (IFIS) (1.4% in the ≤89 vs 9.4% in the ≥90 group, p=0.02), and incidence of brunescent cataracts (6.4% in the ≤89 vs. 17.0% in the ≥90 group, p=0.02). Uncorrected VA (UCVA) on post-operative days (POD) 7 and 30 reveals significantly inferior UCVA in the ≥90 group vs. the ≤89 group (POD 7 UCVA LogMAR 1.0 (0.6-2.0), vs. 0.5 (0.3-0.7), p0.001; and POD 30 UCVA 0.7 (0.4-2.0), vs. 0.4 (0.2-0.6), p0.001; respectively). Multivariate analysis found three independent risk factors associated with inferior postoperative UCVA at POD 30; age ≥90 (p=0.02), diabetes mellitus (DM) (p=0.04), and elevated CDE (p=0.01).

Conclusion: Postoperative UCVA was inferior in the ≥90 group vs. the ≤89 group. Age above 90, DM, and elevated CDE were found to be three independent risk factors for inferior UCVA at POD 30.

Descemet Membrane Detachment in Uncomplicated Phaco Surgery

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Background: Phacoemulsification is the most prevalent technique in modern Cataract Extraction and is considered safe with very low risks. However, one of its possible complications - Descemet membrane detachment (DMD) is potentially severe and may lead to the necessity of performing Corneal Transplantation. We would like to describe Cases in which the Phacoemulsification was uneventful but DMD was diagnosed during follow up visits and its management.

Methods: A retrospective review of Uneventful Phaco Cataract extraction cases who were later diagnosed with DMD Data including Demographics , Pre op exam , Biometry , Post op exam, Diagnostic tools and management protocol. Literature review was performed and compared with our findings.

Results: We Describe 5 cases of DMD who were diagnosed post Cataract Extraction. All cases were rebubbled using Air. All cases regained full Descemet Membrane reattachment. UCVA and BCVA were both significantly improved following treatment. No further complications were seen following treatment.

Conclusions: DMD is a rare but known complication of Phacoemulsification cataract surgery. Diagnosis is based on Post op clinical findings as well as Anterior Chamber OCT where available. Treatment comprises of Air/Gas injection into the anterior chamber beneath the detached Descemet membrane. Once the Air bubble dissipated, Descemet remains attached and continues to function well. If done early Reattachment rates are very high. Raising the awareness and better diagnostic tools will allow early diagnosis and prompt treatment in the future. Some of the possible Risk factors include higher number of corneal incisions , Blunt Blades and excessive wound hydration.

Our Experience With the Use of ZEPTO in Performing Capsulorhexis During Phacoemulsification Cataract Surgery

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Background: Mynosys' Zepto capsulotomy system is a disposable handpiece that uses a proprietary combination of calibrated suction and low-energy pulses to produce high-quality capsulotomies.

Methods: 14 consecutive patients scheduled for routine cataract surgery, were operated by using the Zepto system .Surgeries were performed by 5 surgeons with no previous experience with the Zepto. The medical records and the surgical recordings were reviewed for demographic parameters, V.A. before and after the surgery, complications, centralization of the capsulotomy, duration of the capsulotomy and outcomes.

Results: Out of 14 surgeries, 2 complications occurred during the capsulorhexis, one ended with posterior capsular tear. The second complication resulted in mild iris damage. Time from entering the anterior chamber to the end of the procedure was around 1 minute with an average of 80 seconds (one surgery took 250 seconds). Almost all cases the rhexis was round with identical diameter of 5.25mm, but centration was differs between cases with 0 mm-2 mm off center. In 2 cases a tear was create in the rhexis (both had very hard nucleus) during the phaco.

Conclusion: Taking into consideration the long learning curve of the classic manual capsulorhexis, the use of the Zepto was extremely easier, faster and with fewer complications, and might be use for complication cases or inexperience surgeons.

Update Lecture: Simulation-based training program for residents in Israel

Nirit Bourla, Sheba Medical Center, Israel

The Israeli center for medical simulation (MSR) and the Israeli ophthalmology association are conducting simulation-based training program to improve cataract surgery skills for residents. Course participants practice surgical techniques on specialized task trainers simulating eyes fitted with various cataract types and surgical assignments. This experiential form of training enables a participatory, structured and safe learning experience that is debriefed, with immediate feedback given to the participants, and without placing patients at risk. We hereby describe our experience during the last 2 years conducting this program for ophthalmology residents in MSR.

Strabismus and Pediatric Ophthalmology

Update Lecture: Optical and Pharmacological Treatment Strategies to Slow Myopia Progression

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Background: Myopia is a significant public health issue. Effective optical treatment strategies for myopia are achieved by understanding how visual experience influences refractive development. Animal research has demonstrated that refractive development is regulated by visual feedback and that optically imposed myopic defocus slows axial elongation. Furthermore, the effects of vision are dominated by local retinal mechanisms, and peripheral vision can dominate central refractive development. Atropine eye drops 0.01% is another modality used to slow the rapid progression of myopia in children.

Results: Traditional optical treatment strategies employed in an effort to slow myopia progression in children are interpreted in light of the results from animal studies and are compared to the emerging results from preliminary clinical studies of optical treatments that manipulate the effective focus of the peripheral retina.

Conclusion: The overall results suggest that imposed myopic defocus can slow myopia progression in children. The effectiveness of an optical treatment strategy in reducing myopia progression is influenced by the extent of the visual field that is manipulated. Atropine 0.01% is effective in controlling myopia in children.

Current Trends to Decrease Myopia Progression- IPOSC Global study

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Background: Myopia has become an epidemic. Yet, there is no consensus what is the best way to decrease myopia progression.

The aim of this study was to explore what is the current worldwide preferred practice patterns of pediatric ophthalmologists to decrease myopia progression among their patients.

Methods: A questionnaire was sent to all members of supra-national and national pediatric ophthalmology and strabismus societies.

Results: The questionnaire was fully completed by most respondents 90.10% (847 of 940 responses). The majority routinely treat to decrease myopia progression (57.05%, 457) although this varies considerably between different countries (12% to 90%). The most common parameter to initiate treatment was a myopic increase of 1 diopter/year or more (74.8%, 246). Most respondents (51.1%, 242) did not know at what age response to treatment was most effective. Most (70%, 345) prescribed eye drops. The average age eye drops were initiated was 5.23 (0.5 to 16 years old). Atropine 0.01% was the most popular (63.4%, 277). It showed the highest number of respondents that have not discontinued treatment in any of their patients (79.5%, 178). Furthermore, treatment of Atropine 0.01% had the least number of respondents, who had reported a rebound effect (45.68%, 53). Most respondents advised to spend more time outdoors (85.7%, 394), to reduce the amount of time looking at screens (60.2%, 277), and cutback the use of smart phones (63.9%, 294).

Conclusion: Most pediatric ophthalmologists treat to decrease myopia. They employ a wide variety of means. Atropine 0.01% is the most popular and safe modality. However, there is no consensus when treatment should be initiated. Further prospective studies are needed to elucidate the best timing to start treatment and the applicability of recent studies in the Asian population to other ethnic groups.

Strabismus Surgery Outcomes Without Removal of Scleral Buckle in Patients With Previos Retinal Detachment Repair

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Purpose: To report the motor and sensory outcomes of strabismus surgery following scleral buckle (SB) surgery for retinal detachment without removal of the SB.

Methods: A retrospective case series of patients who underwent strabismus surgery following retinal detachment surgical repair with SB at a tertiary referral center between 2002 and 2015. Demographic data was recorded and surgical motor success (defined as ≤10 prism diopters for horizontal deviation and ≤4 prism diopters for vertical deviation) and sensory success (resolution of diplopia) rates were calculated.

Results: A total of 23 patients with a mean age of 58.4 ± 24.4 years (52% males) were included. The average time between the retinal detachment surgery and the onset of strabismus was 11.05 ± 10.95 months (range 1 to 42 months). The strabismus pattern was horizontal in 6 patients, vertical in 2 patients, and combined in 15 patients. Eighteen (78%) patients presented with diplopia. Eighteen (78%) patients underwent strabismus surgery with an adjustable suture technique. Final motor surgical success rate was achieved in 17 (74%) patients and diplopia improved in 94% of patients. There was no statistically significant difference in age (p=0.49), number of retinal detachment surgeries (p=0.65), macular status (p=0.08), time to strabismus surgery (p=0.83), visual acuity in the worse eye (p=0.71), or magnitude of preoperative horizontal and vertical deviation (p=0.06) as regard to motor success rate.

Conclusions: In strabismus surgery associated with previous SB surgery, motor success and relieve of diplopia may be achieved in most patients without the need of SB removal.

"If it Walks Like a Duck and Quacks Like a Duck, It Is a Duck" … Or is it Not?

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Background: Ophthalmic involvement in multisystem diseases is not a rare condition in patients of the pediatric ophthalmology clinic. Traditionally, based on our common practice in medicine, most of us would look for a single comprehensive diagnosis pertaining to all of the symptoms. Presenting several cases from our pediatric retinal clinic, we challenge the above mentioned approach, of a single pathogenesis. Genetic results show, that some patients carry two unrelated and occasionally rare genetic abnormalities, expressing complex symptomatology that do not originate from one single disease.

Methods: Clinical data and ophthalmic imaging of 8 unrelated children was subject to primary diagnosis based on the traditional concept (one unifying diagnosis) and then after, confronted by the additional information derived from genetic analysis.

Results: In these 8 cases, the primary diagnosis was ruled out by the genetic findings.

Conclusion: Anamnesis, clinical examination, imaging and other tests are still the basis of clinical work. However, genetic counseling and testing contributes a vast added value to diagnosis and treatment. As shown in the above cases it may completely replace the primary. Furthermore, a thorough genetic workup in appropriate cases renders our patients and families not only a correct diagnosis, but also a better prediction of prognosis and a knowledgeable approach for future family planning. Physicians should be aware of this important addition to our diagnostic arsenal and take more advantage of genetic counseling.

Pediatric Non-Penetrating Ocular Foreign Bodies: Epidemiologic Features, Management and Outcomes

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Background: Pediatric ocular foreign body (FB) could be difficult to diagnose and manage. Reports of ocular FBs among children are sparse. The purpose of this study is to describe the epidemiological and clinical features of pediatric non-penetrating ocular FBs.

Methods: The charts of all children (age ≤16 years) who presented to the eye emergency room at the Tel Aviv Medical Center from June 2011 to January 2018 and were diagnosed with eyelid, conjunctival or corneal FB were retrospectively reviewed.

Results: Three hundred and fifty two patients (58.5% male) with a mean age of 7.7 ± 3.7 years (range: 1.5 months-16 years) were included. Two hundred and fifty two (71.6%) children presented at the same day of incident. Mean time from incident to presentation was 0.56 ± 2.1 days (range: same day-30 days). Only 19 (5.4%) incidents occured at the kindergarten or at school. The FB was under the eyelid, conjunctiva and cornea in 128 (36.4%), 147 (41.8%) and 61 (17.3%) patients, respectively (data was not available for 16 (4.5%) cases). Patients who underwent sedation or general anesthesia for FB removal were younger than patients in whom their FB was removed using anesthetic eye drops (p0.05). FB removal necessitated sedation or general anesthesia in 17 (27.9%) cases of corneal FB and this percent was significantly higher than if the FB was under the eyelid or in the conjunctiva (p0.05). In 2 (3.3%) cases the corneal FB was complicated with a corneal ulcer. On last follow up 3 (4.9%) patients had mild corneal scar which was not clinically significant.

Conclusion: This study is the largest case series of non-penetrating ocular FBs in children. These cases have good prognosis with no long term complications. The removal of corneal FBs in children require sedation or general anesthesia in significant number of cases.

Myopia Progression in School Aged Children and Adolescents in Israel - A Clinical Practice Based Study

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3. Sackler Faculty of Medicine, Tel Aviv University, Israel

Background: Myopia is the most common ocular disorder and its prevalence has risen significantly during the last two decades reaching epidemic proportions. Several studies were conducted with variable results on progression rate. One of the limitations in all studies is insufficient follow-up time, with only few studies in which patients were observed longer than two years, and a relatively small sample sizes. We aimed to evaluate the natural myopia progression rate.

Methods: Retrospective collection of cycloplegic refractive measurements taken at a single clinic. Subjects aged 5-15 who had at least 3 consecutive annual measurements were included. Myopia yearly progression rate was determined using Generalized Estimating Equations (GEE) model adjusted for age and refraction at presentation. Myopic children were divided into three groups according to their last reported SE: mild myopia (up to 3D) moderate myopia (3D to 6D) and high myopia (≥6D)

Results: Out of 56,869 subjects treated at the clinic, 1,976 (3,951 eyes) met the inclusion criteria with a mean of 4.7±2.9 visits over a period of 6.1±3.7 years (17,826 visits total). In the general population, the yearly rate of progression was -0.21±0.01diopter. The progression rate was higher among children who developed moderate myopia (-0.36±0.02) and over twice higher than the general population among children who reached high myopia (-0.41±0.03).

Discussion: There was a clear difference in progression rate between patients with mild, moderate and high myopia. The mean myopic progression rate in our cohort is less than in other previous recent reports and most myopic children in our cohort stay in the "mild to moderate refractive error zone"

Conclusion: Individual rate of myopia progression should be evaluated in order for the physician to estimate whether a child has high chance of developing high myopia in order to consider recommending a treatment.

Accuracy of Ultrasound Biomicroscopy in Localization of Horizontal Extraocular Muscle Insertions Before and After Strabismus Surgery

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Background: Localization of recti muscles' insertion can be challenging, especially in recurrent strabismus surgery. Our purpose was to investigate the accuracy of ultrasound biomicroscopy (UBM) in locating these insertions before and after strabismus surgery.

Methods: Prospective masked study. Distance from the limbus to the insertions of the horizontal recti muscles was measured intraoperatively by caliper and by UBM performed one day pre-operatively and during follow-up. Accuracy was defined by the difference between UBM and caliper measurements.

Results: 39 muscles (19 medial and 20 lateral recti) of 23 patients were included, mean patients' age was 34.7 yeas ± 15.5 (18-78). 12 muscles were recessed (10 with fixed sutures and 2 with hang back sutures) and 13 were resected/advanced. 12 of the muscles were re-operated.

All muscles insertions were measured preoperatively by UBM. Twenty-five muscles were measured during follow-up. Final measurement took place 183.4 ±86.7 days (35-365) after surgery.

Pre-operative mean UBM measurements for both MR and LR were similar to intraoperative measurements (+/-1 mm). Strong correlation was found between UBM and caliper measurements (P

Conclusion: UBM is a reliable tool in evaluation of location of muscles after surgeries. Accuracy decreases as distance from limbus increases. UBM can assist Strabismologists in planning repeated operations.

Axial Length as a Risk Factor for Development of Acquired Distance Esotropia

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Background: Acquired distance esotropia (ADE) is caused by downshift of the lateral and nasal shift of the superior rectus muscles with inward dislocation of the globe between these muscles. We thought to examine whether increased axial length is related to this phenomenon.

Methods: All adult patients operated for esotropia by the senior author during 1/2015-8/2017 were included. Patients in the ADE group had aquired esotropia of at least 5 prism diopters greater for distance than near and mild abduction deficit. They were treated by superior to lateral rectus myopexy. Other patients with esotropia that were operated by conventional recession or resection of the horizontal recti and patients without strabismus awaiting cataract surgery served as controls. Axial length was measured in all subjects.

Results: ADE, esotropia and cataract groups had 11, 15 and 15 patients respectively. Average age was 44±14 (range 23-69 years), 32±13 (range 16-58 years) and 61±19 (range 23-84 years) respectively. In ADE average esotropia for distance was 17.2±3.8 prism diopters (PD, range 10-25) and 8.18±7 PD for near (range 4-20), while in the esotropia group it was 27±14 PD for distance (range 20-50) and 31±12 PD (range 20-55) for near. ADE patients were significantly more myopic (average -2.11±2.89, range +0.75 to -7.5D) than the esotropia group (average +1.75±2.1, range -1.0 to +6.0) and the cataract group (average +0.75±1.5 range -2.5 to +3.0 p=0.003).

Average axial length in the ADE group was 25.05±1.7mm (range 23.4-29.54), significantly more than the esotropia group (average 22.4±0.8mm, range 21.0-23.3) and the cataract group (average 22.9±0.73mm, range 21.87-24.55, p=0.007).

Conclusion: Patients with ADE have significantly bigger axial length than other patients with esotropia and normal controls. ADE may be a milder version of strabismus fixus seen in highly myopic patients with high axial length (heavy eye syndrome).

Uveitis

Comparing Treatment of Acute Retinal Necrosis With Either Oral Valaciclovir or Intravenous Aciclovir

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Purpose: To compare the long term visual outcomes of patients with acute retinal necrosis (ARN) treated initially with intravenous aciclovir versus oral valaciclovir therapy.

Methods: This is a retrospective case series including 62 patients (68 eyes) with ARN, treated at Moorfields Eye Hospital (United Kingdom) between 1992 and 2016, were identified through the hospital's electronic database.

Exclusion criteria included insufficient patient records or follow-up (150 days). 56 patients had unilateral ARN, while 6 had bilateral ARN. Patients who received intravenous aciclovir on diagnosis (n=33) were compared with patients treated with oral valaciclovir (n=29) across outcomes including best corrected visual acuity, retinal detachment, severe vision loss and other long-term complications. The impact of adjunctive intravitreal antiviral and prophylactic barrier laser treatment was also assessed.

Results: Change in best corrected visual acuity was not significantly different for patients treated initially with intravenous therapy versus oral therapy over 5 years of follow-up data (p=0.16). In both groups, approximately half of ARN patients developed severe vision loss (p=0.18), while close to 30% retained good vision regardless of treatment type (p=0.80). Retinal detachment occurred in approximately two-thirds of cases and did not differ across treatment groups (p=0.67). Barrier laser and intravitreal therapy had no effect on retinal detachment rate in either group.

Conclusion: Oral valaciclovir is non-inferior compared with intravenous therapy in the management of ARN. Oral valaciclovir therapy as an outpatient with or without intravitreal foscarnet—can therefore be considered as an acceptable alternative to in-patient therapy required for intravenous treatment.

Herpetic Anterior Uveitis –Analysis of Presumed and PCR Proven Cases

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Background: Herpetic anterior uveitis (HAU) is the most common cause of infectious anterior uveitis. The purpose of our study was to describe the demographics and clinical characteristics of patients with HAU, to compare characteristics by disease pathogen and by recurrent disease, and to investigate the association between iris atrophy and other clinical findings.

Methods: A multicenter, retrospective study of HAU patients from 8 uveitis clinics. Patients were suspected with HAU if they had at least 2 of the following: IOP elevation, iris atrophy, scattered KPs, dilated pupil, recurrent unilateral attacks. Definite diagnosis of HSV, VZV and CMV was done by PCR and by pathognomonic anamnestic and clinical manifestations, including active or a documented past episode of zoster ophthalmicus, herpes simplex blepharo-conjunctivitis and the presence of corneal dendrite.

Results: The study included 112 eyes of 109 patients. The mean age was 53.21±18.48 years, (range, 4–88), 51% were females. Median follow-up time was 22 months. Fifteen patients (14%) were under immunosuppressive (IMN) treatment. Fifty four (48.2%) HSV eyes, 34 (30.4%) VZV eyes, 2 (1.8%) CMV eyes and 22 (19.6%) unspecified HAU eyes. Eyes with HSV compared to VZV had significantly more recurrent disease, high IOP, iris atrophy, corneal involvement, KPs and posterior synechia (p0.05). Eyes with VZV had significantly higher rates of IMN treatments and history of systemic herpetic disease (p0.05). Fifty nine (52.7%) eyes had a recurrent disease; cataract and macular edema were more prevalent among these eyes (p0.05). Iris atrophy was associated with significantly higher prevalence of posterior synechia and high IOP (p0.05).

Conclusion: HSV was the most common pathogen. No clinical findings, excluding corneal dendrites and dermatological manifestations, could confirm pathogen diagnosis and PCR testing should be more commonly used. Recurrent disease was associated with more complications and iris atrophy was associated with more severe disease.

Chorioretinal Toxoplasmosis Clinical Presentation, Treatment Results and Long Term Follow Up in a Single Tertiary Center in Israel

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Introduction: The hallmark of ocular toxoplasmosis is primary or recurrent necrotizing retinochoroiditis.

purpose: of this study was to retrospectively evaluate our experience with the treatment of the disease.

Results: 22 consecutive patients were treated in a single tertiary center for active diseases between the years 2007-2016. Patient medical recorders were evaluated for: demographics, medical history, clinical presentation treatment results and recurrence rate. The series included 64% females at the average age of 29. Fourteen percent presented with bilateral disease. The disease was congenital 14%, Primary in 50% and a recurrent in 32%. Clinical presentation included a white–yellow necrotizing chorioretinal lesion in all patients. In addition the most prevalent presentation in decreasing order were vitreitis 85% Vasculitis 45% and anterior uveitis 18% Indication for treatment were macular threat 73% optic nerve threat 70% both macular and the optic nerve treat 40%. Visual acuity at presentation ranged from 6/6 to 1/15 depending on the lesion location, and size.

Treatment with classical Triple therapy and steroids was used in 86% of the patents. Other regiments included oral Resprim 14% Clyndamycin 14% and Intravitreal clindamycin 4.5%. The mean follow up time was 37 months. Treatment tolerance was good yet 22% developed drug reaction that needed treatment adjustment. Disease control was achieved in all patients. All the lesions became scars with various degree of pigmentation. Recurrence occurred in 32% mean time to recurrence was 42 months Visual acuity improved in 50%, did not change in 40% and decrease in 10%.

Conclusion: Chrioretinal Toxoplasmosis can be successfully treated with favorable visual acuity results. The prevalence of Primary acquired toxoplasmosis in our population is high due to cultural and behavioral factors.

Fungal Endogenous Endophthalmitis: Our Experience in 6 Women

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Background: Candida species are the most common organisms that cause endogenous fungal endophthalmitis in all age populations. Predisposing conditions include hospitalization, history of gastrointestinal surgery, indwelling catheters, systemic antibiotic use, bacterial sepsis, among others. Characteristic candida chorioretinitis exhibits multiple, white well-circumscribed lesions, associated with overlying vitritis and vitreous exudates in a classic string-of-pearls appearance. We aim to describe the ophthalmological features, risk factors and clinical course of patients who presented between 2014-2017.

Methods: Retrospective review of the medical charts of patients.

Results: Six female patients, mean age of 58 years (range: 28-70) were included in the study. Of them, 5 were immunocompetent. Three were after gastrointestinal surgery/procedure and 2 after lithotripsy with indwelling catheter. Patients presented with decreased vision and pain of 1 to 8 week-duration. Four had unilateral involvement. Visual acuity (VA) in the affected eyes at presentation was counting fingers (CF)/hand movement (HM) in 5 cases, 6/6 in two eyes and 6/60 in one eye. All underwent diagnostic and therapeutic vitrectomy with intravitreal antimicrobial injection. Systemic antifungal treatment was administered. Positive vitreous cultures were obtained in 4 patients. Poor visual outcome was seen in 3 out of 8 eyes. Complications included: retinal detachment with hypotony, macular pucker, cystoid macular edema and macular scar. Mean follow-up time was 9 months (range: 5 months – 2.6 years).

Conclusion: Endogenous candida endopthalmitis is a sight-threatening condition. Patients with history of gastrointestinal invasive procedures and indwelling catheters are at greater risk of developing candida intraocular infection. A good clinical history should raise suspicion of candida infection. Diagnosis is clinical and confirmed by positive results on vitreous or blood cultures. Early treatment with vitrectomy, intravitreal and systemic antifungal agents leads to better visual outcome.

Uveitis Induced by Biologic Agents Used in Cancer Therapy

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Purpose: To report cases of uveitis induced by biologic therapy given for the treatment of cancer.

Methods: A retrospective analysis of uveitis in cancer patients treated with Vemurafenib, Nivolumab or Osimertinib between 2011-2016. Medical records were reviewed for demographic data, clinical presentation, and disease course.

Results: Included were 5 patients (age range 14-81 years, all were females) treated with Vemurafenib (n=3), Nivolumab (n=1) or Osimertinib (n=1). Oncologic diagnosis included metastatic thyroid carcinoma, pleomorphic xanthoastrocytoma, metastatic melanoma, adenocarcinoma of the lung, and metastatic breast cancer. Ocular manifestations appeared 3-82 weeks after the biologic treatment initiation, and were bilateral in 3 patients and unilateral in 2 patients. The most common presentation was anterior uveitis (4 patients, 7 eyes). One patient was diagnosed with an intermediate uveitis (1 eye). All cases presented with a sudden onset (8 eyes). Mean duration of uveitis was 31 weeks (range 10 - 150 weeks).. Treatment included topical steroids (4 patients), and a single intravitreal steroid injection in one eye of one patient.

Conclusions: Uveitis may rarely be induced by biologic therapy used in cancer therapy. Both oncologists and ophthalmologists should be aware of this potential side effect. After exclusion of infection, early detection and treatment can prevent permanent complications and save the patient's vision.

The Challenge of Pediatric Uveitis: Tertiary Referral Center Experience in the United States

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2. Ophthalmology, Massachusetts Eye Research & Surgery Institution, USA
3. Medicine, Harvard Medical School, USA

Purpose: To describe the distribution, clinical findings, visual outcomes, treatment, and complications of children with uveitis at a tertiary referral ophthalmic center.

Methods: Retrospective cohort study. We reviewed the medical records of all patients ≤16 years with uveitis referred to Massachusetts Eye Research and Surgery Institution from March 2005 to July 2016.

Results: Of 286 included children, 62.24% were female. Mean age of onset was 8.4 years. The uveitis was mainly anterior (61.9%), recurrent (68.53%), bilateral (81.82%), and noninfectious (96.5%). Idiopathic cases accounted for 51.4%. The most frequent systemic association was juvenile idiopathic arthritis (34.96%). The majority of patients (78.32%) experienced complications. All patients, except one, needed systemic therapy.

Conclusion: Pediatric uveitis is challenging to diagnose and manage, with frequent and potentially severe complications. Most cases were bilateral, recurrent, and idiopathic. Prompt referral to uveitis-specialized centers and an appropriate systemic therapy are mandatory for good visual outcomes.

Update Lecture: Adalimumab for Pediatric Uveitis

Ron Neumann, Uveitis Consultant for Maccabi Health Care Services, Israel

Uveitis is a serious, potentially blinding disease of the eye. Its impact on children is especially severe considering parameters such as risks of amblyopia, lack of complaints in younger children, the vulnerability of the developing eye to inflammation and the difficulties in proper eye examination in younger children. In addition, the impact of systemic corticosteroids therapy in younger age is especially problematic due to weight gain, impact on growth and potentially severe mental swings. The challenges of caring for and continuously treating these children may severely damage the family matrix. Furthermore, adapting anti-inflammatory strategies of chemotherapeutics in young children with limited supportive data, specifically for that age group, presents an additional question mark on the prognosis of the disease in children. Adalimumab is the first non-steroidal, TNF-alpha inhibitor, anti-inflammatory agent that was studied in Randomized controlled trial to ascertain its effect in Juvenile Idiopathic arthritis associated uveitis (The Sycamore trial). The study was done in active uveitis patients despite stable therapy with Methotrexate (MTX). Half of them continued MTX alone (active placebo group) while the other group started additional treatment with Adalimumab injections in weight adjusted dosing. The study was stopped following recruitment of only 90 patients of the 114 intended to be recruited as it reached its statistical target showing a 73% reduction in treatment failure in the Adalimumab group compared with the MTX treatment alone. This study allows us for the first time to treat children with JIA uveitis based on evidence-based data. Important to add that the Israeli ministry of health approved Adalimumab for all pediatric uveitis indications based on the Sycamore study.

I Can't Believe it Worked!

Choosing Wisely - The Israeli Ophthalmological Society Recommendations

Shiri Shulman, Opthalmology Division, Tel-Aviv Medical Center, Tel-Aviv, Israel, Opthalmology Institute, Assuta Medical Centers, Israel

Choosing Wisely is an international program initiated by the American board of internal medicine and "consumers report" magazine in 2012 and adopted by many countries worldwide. Its purpose is to encourage a discussion between doctors and patients regarding unnecessary tests and treatments.

One third of the tests and treatments we perform were proven to be unnecessary and even harmful. Some are performed due to patient's will and some performed to protect ourselves from law suits. Unnecessary tests can reveal findings that will cause the need for further tests. All these burden the patient and the health system and can also cause complications and side effects.

Each participating country developed a local set of recommendations for each of the professional societies.

At the end of 2016 we started this process in the israely ophthalmology society. We collected recommendations from the heads of the societies and presented these together with the American , british and Australian opthalmological societies . These were sent to all 650 members of the IOS . 185 members completed the questionnaire.

The following recommendations got the highest scores:
1. It is not necessary to order blood tests and ECG prior to cataract surgeries performed under local anesthesia
2. It is not necessary to perform a bettery of tests in all patients with uveitis
3. It is not indicated to perform laser on asymptomatic peripheral retinal lesions such as lattice and holes
4. It is not indicated to send asymptomatic patients without eye disease to perform tests such as OCT or visual field tests
5. It is unnecessary to prescribe antibiotic drops to patients with viral conguctivitis

Each of these recommendations is evidence based and was approved by the israely medical association. A campaign to the public is coming soon and we hope this will contribute to a safer treatments for our patients.

Toric IOL Implantation in a Patient With Microspherophakia

Adi Abulafia, David Zadok, Ophthalmology, Shaare Zedek, Medical Center, Jerusalem, Israel

We describe a challenging case of a clear lens extraction with toric intraocular lens (IOL) implantation in a patient with microspherophakia. A 24-year-old patient presented to our clinic with bilateral idiopathic microspherophakia, high myopia, corneal astigmatism and chronic angle closure treated with Combigan BD. The corrected distance visual acuity (CDVA) in both eyes was 6/9 with a subjective refraction of -12.5-3.0x18 for the right eye (RE) and -11.0-2.0 x165 for the left eye. The intra ocular pressure (IOP) was 18 mmHg in both eyes. Both eyes presented with anterior subluxated microspheric lenses with shallow anterior chambers. The patient had undergone right eye clear lens extraction followed by a capsular tension ring implantation, two sclera sutured capsular segments and in-the-bag toric IOL implantation. Five weeks postoperatively the uncorrected distance acuity in the RE was 6/6(-2) and the CDVA was 6/4.5(-2) with a subjective refraction of +0.50-0.75x150. The IOP was 14mmHg with no IOP-lowering drugs.

Severe Corneal Decompensation in an ICE Syndrome Patient Treated Successfully by Descemet Membrane Endothelial Keratoplasty (DMEK)

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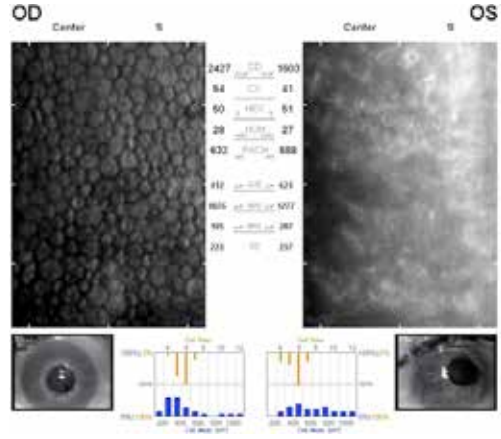
Background: Iridocorneal endothelial (ICE) syndrome is a group of ocular pathologies characterized by proliferation and migration of aberrant corneal endothelial cells towards the iridocorneal angle and iris surface, causing a varying degree of corneal edema and decompensation, iris atrophy, and secondary angle-closure glaucoma. Herpes simplex virus and Epstein-Barr virus may have a role in the pathogenesis. Due to the complex presentation, management of these patients can be challenging, especially concerning the technical difficulties of performing Descemet Membrane Endothelial Keratoplasty (DMEK), when needed.

Methods: Case report of an ICE syndrome patient with Progressive Iris Atrophy, including imaging and operation footage.

Results: A 74-year-old female has been followed up in the cornea clinic at Hadassah Medical Center since July 2017, due to LE ICE syndrome, presenting with stable glaucoma under local treatment, corectopia, and significant corneal edema. Due to the low VA in the LE and a significant brunecent cataract, on 29/8/2017, the patient underwent an uneventful LE phacoemulsification and IOL implantation. Post-op, the patient's corneal decompensation and edema progressed, including endothelial detachment and recurrent events of Bullous keratopathy causing corneal erosions, requiring a bandage contact lens (BCL) use. Under suspicion of Herpetic keratitis, treatment with systemic and local Acyclovir was added. In light of advanced decompensation and deteriorating visual acuity (FC10cm), despite limitations of severe edema and a shallow chamber with severe PAS and corectopia, on 8/2/2018, she underwent an uneventful DMEK, including mechanical peripheral anterior synechiolysis and pupilloplasty. On 3 weeks post-op follow-up, VA improved to FC2m PH 0.05, IOP 17 and the patient was pain-free. On examination, the graft was attached and progressive clearing of the cornea was demonstrated. Long-term results are pending.



Conclusions: In cases of a severe corneal decompensation in ICE patient, despite technical difficulties, a successful DMEK may improve patient's quality of life.

Inadvertent Injection of Dexamethasone Intravitreal Implant (Ozurdex) Into the Crystalline Lens: An Unpleasant Surprise With a Happy Ending

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Background: Ozurdex (Allergen, Inc., Irvine, CA, USA) is a sustained release biodegradable intravitreal dexamethasone implant used for the treatment of macular edema secondary to uveitis, diabetic retinopathy and retinal vein occlusion. Ozurdex is injected at the pars plana into the vitreous cavity with a pre-loaded syringe. A rare complication is the unintentional injection of Ozurdex into the crystalline lens.

Methods: We present a 45 year old woman suffering from bilateral intermediate uveitis and secondary glaucoma, treated in our uveitis clinic. Her left eye is amblyopic and exotropic with a best corrected visual acuity (BCVA) of 6/120 recorded upon her initial presentation. Over a 2 year follow up period she was treated with periodic intravitreal Ozurdex injections in both eyes. During the fifth injection in her left eye, the implant was accidently injected into the crystalline lens. Our patient had no change in BCVA and had no visual complaints, probably because of her amblyopia. Nonetheless, she was meticulously followed for 2 weeks, during which an intumescent cataract was developing and the intraocular pressure (IOP) gradually rose. Therefore it was decided to perform cataract surgery and remove the implant from the eye.

Results: Phacoemulsification cataract extraction was performed with the removal of the implant, which was brittle and disintegrating. The posterior capsule was partially open as it was ruptured upon the initial penetration of the implant. An intraocular lens (IOL) was implanted in the sulcus. One month post-surgery the eye was quiet, visual acuity was 6/30 , the IOL was stable in the sulcus and no macular edema was detected on optical coherence tomography.

Conclusion: Inadvertent injection of the Ozurdex implant is a rare complication. Careful follow-up is essential as complications may progress rapidly. Early cataract extraction with removal of the implant is warranted If significant cataract formation or IOP elevation develop.

Less Invasive - for the Win

Avital Adler, Yiftach Yasur, Ophthalmology, Rabin Medical Center, Petah Tikva, Israel

61 y/o female had a traumatic eye injury by a palm tree branch. She was admitted to the ER due to a pain in her eye. Initial visual diagnosis; proptosis and full ptosis in her right eye. CT scan showed the injury tract that pierced through the eye orbit`s lateral wall, through the infra temporal fossa up to the scull base. No foreign body was observed, only air which accented the tract. In addition, an MRI scan did not detect any evidence to a foreign body. She was treated with ABX PO and was released from the hospital with an outpatient clinic follow up. 2 weeks later she was admitted to the ER due to extreme pain in her eye. CT scan showed an abscess in the infra temporal fossa and she was operated in order to drain the abscess, furthermore, attempts were made to find foreign bodies - with no success. After no improvement in her medical condition, a second surgery was scheduled. A major surgery including making a bicoronal cut was considered as an option, this involved peeling off the temporalis muscle in order to get to the scull base. A second option which was preferable being less invasive was opted for, this consisted of following the tract of the initial wound to detect foreign bodies.

IRIS: a New Soft Acrylic Artificial Iris Prosthesis

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Purpose: To report a new soft artificial iris intraocular lens (IOL) specially designed for correction of aniridia or iris deficiencies associated with cataract or aphakia.

Patients and Methods: A case report of a patient with total aniridia and aphakia due to penetrating trauma who underwent a surgical procedure/ A black (IRIS) diaphragm intraocular lens was used with a scleral fixation.

Results: The esthetic results were satisfactory. Photophobia was reduced and visual acuity was improved from HM to 6/15 after the surgery.

Conclusion: We recommend the use of artificial iris IOL in aniridia associated with cataract or aphakia.

Anterior Segment Reconstruction in a Patient With Congenital Aniridia

David Zadok, Adi Abulafia, Ophthalmology, Shaare Zedek, Medical Center,, Israel

Video presentation: Purpose: We present the surgical management and outcome of a patient with congenital aniridia syndrome and subluxated crystalline lens.

Methods: A 20-year-old patient was presented at Shaare Zedek Medical Center with congenital aniridia in both eyes, glare, light sensitivity and reduced visual acuity. Clinical examination revealed nystagmus, BCVA of HM in both eyes. Biomicroscopic examination showed bilateral aniridia with a severe subluxated crystalline lens. The patient underwent LE clear lens aspiration with transscleral fixation of a custom-tailored artificial iris prosthesis (CustomFlex Artificial Iris, HumanOptics AG) combined with transscleral fixation of a foldable intraocular lens (IOL).

The "Ghost DMEK" Technique: Peripheral Staining of Descemet's Membrane Endothelial Keratoplasty (DMEK) Grafts Without the Use of Trypan Blue

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Background: In Descemet membrane endothelial keratoplasty (DMEK), Trypan blue is used for the visualization of the graft to allow unfolding and recognition whether the graft is in the right side up. To further ascertain the graft`s orientation, different maneuvers are implemented as Moutsouris sign, use of oblique light ray, use AS-OCT or marking an "F" on the Descemt`s side. We describe a novel technique that uses peripheral-only staining of the DMEK graft borders using a trephine pre-marked with gentian violet which obviates the aforementioned techniques.

Methods: Partially pre-stripped graft were put endothelium-side up in a punch block, and the interior side of an 8.5mm punch was marked using a gentian violet marker. Then, the graft was lifted using a forceps and the peeling of the graft was completed. The rest of the surgery was done using standard non-touch technique method, without staining of the graft with Trypan blue. The graft orientation was easily recognized without the need of any of the aforementioned techniques due to the contrast between the stained graft edges to the unstained rest of the graft. So far, 4 DMEK cases were operated by this novel technique.

Results: In all cases, the graft unfolding in the anterior chamber was feasible without the use of Trypan blue, and in all cases the proper orientation of the graft was apparent by simple observation of the graft`s edges without the necessity of using the aforementioned techniques. All cases were successfully concluded with clearing of the corneas operated.

Conclusions: The novel technique hereby presented obviates the use of Trypan blue during surgery and obviates the need for other, more complicated or expensive techniques used to recognize the graft`s orientation.

Non-Exenteration Management in an Orbital Mucormycosis patient: Is it a Good alternative?

Yoav Vardizer, Ophthalmology, Bnai Zion Medical Center, Haifa, Israel

We present a 39 y/o diabetic male that was diagnosed with mucormycosis sinusitis and inferior orbit involvement.

Patient was treated with diabetic ketoacidosis rapid control and antifungal treatment.

He underwent five debridement surgeries to excise the inferior orbital wall with inferior infected fat and later on the lower half of the medial and lateral walls, all the walls of the maxillary sinus and the Rt hard palate. Patient was treated also with adjuvant hyperbaric oxygen.

After stabilized, an obturator prosthesis was fit and a printer assisted orbital wall implant was attached to the residual orbit to prevent the orbital content from falling into the lower cavity.

Patient was released after a long multidisciplinary rehabilitation process with VA of 6/9 and no diplopia in primary gaze.

We would like to discuss the importance of considering a non – exenteration treatment in selected mucormycosis patients.

Nd:YAG Laser Vitreolysis for the Release of an Iluvien Implant

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Introduction: Slow-release intravitreal corticosteroid implants are used for the treatment of diabetic macular edema (DME). Available implants include Ozurdex and Iluvien.

Methods: Case report, of a 48 year old man who was treated with an Iluvien implant for DME in his only functional eye which had been previously vitrectomized. The implant became firmly fixated in his visual axis causing a significant disturbance.

Results: Before performing surgery to remove the implant, an attempt to release it was made using Nd:YAG laser vitreolysis. This unique treatment was successful, and the implant was released from the visual axis, achieving resolution of symptoms, as well as retention of the implant and no need for surgery.

Conclusion: This is the first report of an implant fixated in the visual axis, as well as of an elegant treatment for this complication. The relevant literature on laser vitreolysis will also be discussed.

Combined Pars Plana Vitrectomy and ab Externo Scleral Fixation of Akreos Advanced Optics Lens With Gore Tex Sutures

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Background: common management for positioning IOL with no capsular support is scleral fixation suturing technique- including small incisions lasso,cow hitch of 3 piece PCIOL or large incision eyelet loaded PMMA PCIOL ,these techniques increase the risk for IOL tilt, decentration and long term risk of suture breakage. herein we addressed num of the concerns of scleral sutures IOL by introducing a worldwide upcoming technique using the Akreos AOS. The only lens that has 4 eyelets providing 4 fixation points ensuring IOL stability with minimum tilt improving VA outcomes. Its the first world acrylic aspheric nature IOL it doesnt add further aberrations to the patient`s eye providing better depth of field.

Akreos has unique design of Square-Edge and a 360° posterior barrier decreasing the risk of suture breakage, in the other hand minimizing cell migration following implantation .It`s extremely soft hydrophilic IOL hence it`s easily folded which enable us to preform smaller incisions for it`s insertion a matter of great importance in vitrectomy procedures thus avoiding hypotony. small corneal incisions induce lesser amount of astigmatism preventing further refractive correction procedure. Recent studies present a satisfactory optical results regarding the Akreos lens implantation with even better visual acuity post operation in the majority of the patients.

Methods: a 74 year old women attended our Department with dislocated PCIOL . The patient underwent a pars plana vitrectomy, extraction of the dislocated intra ocular lens using Osher scissors and an Ab externo fixation of an intra ocular lens Akreos Advanced Optics 60 using Gore- Tex sutures.

Conclusion: Combined pars plana vitrectomy and ab externo scleral fixation of Akreos lens with Gore Tex sutures is a new reported technique in the world, easy and safe to perform with very good optical outcomes. And no reported intra operative complications.

Aesthetics of Reconstructive Oculoplastic Surgery in Severe Trauma

Mikhail Kataev, Department of Plastic Surgery, S. Fyodorov Eye Microsurgery Federal State Institution,Moscow, Russia

Background: Reconstructive oculoplasty is considering anatomical defects resulting from trauma or crippling surgery. Normal anatomy and function have to be restored for medical reasons which essentially include ptosis, lagophthalmos, entropion, ectropion, trichiasis. Medical aid commonly does not presuppose cosmetic improvement, the element which is not valued by insurance programs. So, aesthetical component of reconstructive surgery can be considered as a bonus provided by a surgeon. Nevertheless aesthetical problems are extremely important for patients and frequently are of essential and even critical value for their social and professional adaptation. Two main ways to evaluate the aesthetical improvement has been described in literature: by questionnaire reported by patients or physicians or by measuring physical dimensions.

Purpose: Assessment of aesthetics in traumatic disfigurement and postoperative improvement after reconstructive surgery. Material and method. Considering aesthetics assumed both surgical techniques and evaluation method. Patients with orbital fractures, eyelids deformity, anophthalmos were taken into account. In orbital surgery titanium plates were used to make the framework, silicone, carbon felt and PTFE implants for contour plasty. In eyelids reconstruction cosmetic effect of local flaps, periorbital flaps, skin grafting from different donor sites were comparatively assessed. The evaliation method. The presently proposed approach for assessment was based on the gist of the subject, the idea of what a cosmetic defect is. Cosmetically significant deformity is what can be distinguished by an observer. In bad conditions of visualization a defect is not noticeable. One of these conditions is defocusing of the image. It can be achieved by computer means (blurring tool) which provide quantitative value. To assess general aesthetics with digital evaluation in 3D mode stereo imaging was completed with blurring.

Results: According to applied method cosmetic evidence of defects was ranked as follows from max to min): asymmetrical position of the eye (prosthesis), sunken upper eyelid, general deformity of the eye fissure, madarosis, irregularity of eyelids surface, fine deformity of the angles and lid margins. Blurring of spatial images contributes a lot to the understanding of the aesthetics of the anophthalmic orbit. While en face portrait image of a patient with large prosthesis looked perfectly, 3D imaging proved significant disfigurement due to exophthalmos.

Discussion: Measuring defects by a ruler cannot explain a cosmetic defect exhaustively. Computer blurring gives a convenient tool to assess aesthetical disfigurement as a whole. Using this instrument gives an opportunity to compare overall advantages of surgical techniques and assess their worthiness. Aesthetical defects of different value on one face can be detected by gradual blurring step by step, thus ranking the cosmetic significance of every part of eyelids and orbit. The next elusive field of investigation is assessment aesthetics in motion. Static plane and 3D images shows much, but motion picture will show much more.

Novel Techniques in Orbital and Peri-Ocular Reconstruction

Guy Ben Simon, Daphna Prat, Goldschelger Eye Institute, Sheba Medical Center, Tel Hashomer, Israel

Purpose: To describe a novel custom made orbital implant (Su-Por surgical implants, Poriferous LLC, Newnan, GA, USA) for large orbital blow out fractures.

Methods: Electronic Medical Record (EMR) data collection and analysis.

Results: Three patients with large orbital blowout fracture were operated using custom made orbital implants. Two underwent previous orbital reconstruction with porex / titanium implants but had persistent enophthalmos with deep superior sulcus. One patient sustained a large medial and orbital floor fracture with bone displacement. Post-operatively, all three patients showed marked improvement in enophthalmos and deep superior sulcus. No complications such as motility disturbances, persistent enophthalmos or implant exposure occurred during the study period.

Conclusions: Custom made orbital implants are an interesting alternative to regular implants (porex / titanium). We believe that these implants should be the 1st choice for corrective surgery, since volume / bony deficit is calculated and designed according to the normal uninjured orbit.

ReLEx® SMILE Technology for High Myopia Correction

Andrey Kachanov, Refractive Surgery Department, The Academician IRTC, S.N. Fyodorov "Eye Microsurgery", St. Petersburg, Russia

Purpose: To evaluate SMILE operation for high myopia correction.

Settings and Venue: 1 - The Academician IRTC S.N. Fyodorov “Eye Microsurgery” St.-Petersburg Affiliate; 2 – North-Western State Medical University named after I.I. Mechnikov, St.-Petersburg, Russia.

Materials and Methods: ReLEx® SMILE surgeries were performed in 84 eyes with high myopia (42 patients) with the 500 kHz VisuMax® femtosecond laser (Carl Zeiss Meditec AG, Jena) in the "fast mode" setting. The age of all patients was 27,4 ± 6,4 years (mean ± SD). Follow-up period was up to 12 months. We used different spatulas and forceps techniques for lenticule removal.

Results: The spherical equivalent (SE) of our high myopic group ranged from - 6,25 D to -12,0 D, and it was changed from – 8,30 D (± 1,24 D) prior to ReLEx® SMILE to - 0,47 D (± 0,31 D) 12 months later. The decimal UDVA was changed from 0,03 (± 0,01) before surgery to 0,89 (± 0,20) to 1 day later, and 0,95 (± 0,12) to 1 month later, and 0,90 (± 0,26) to 12 months later. We had no serious complications during and after SMILE surgery.

Conclusions: ReLEx® SMILE is effective, safe and predictable technology for the correction of high myopia and myopic astigmatism.

Risk Factors for Dry Eye After Refractive Surgery

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2. Department of Ophthalmology, Rambam Health Care Campus, Haifa, Israel
3. Department of Ophthalmology, Barzilai Medical Center, Ashkelon and the Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheba, Israel
4. Care-Vision Laser Centers, Tel-Aviv, Israel

Purpose: To determine the factors associated with clinically significant dry eye disease following keratorefractive surgery.

Methods: This large database retrospective study included consecutive cases of myopic LASIK or PRK performed between 2008 and 2016 at Care-Vision Laser Centers, Tel-Aviv, Israel. Patients were divided into 2 groups according to whether or not they developed clinically significant dry eye (Dry Eye Workshop grade 2 or greater).

Results: A total of 25,317 right eyes of 25,317 patients, mean age 27.0 ± 8.3 years were included. Postoperative dry eye developed in 1518 eyes (6.0%). The dry eye group was older (29.2 ± 9.0 versus 27.6 ± 8.3 years, p<0.001), had a higher proportion of females (48.5% versus 44.8%, p=0.005), lower preoperative spherical equivalent (3.7 ± 2.0 versus 4.0 ± 2.3D, p<0.001), lower preoperative best-corrected visual acuity (BCVA) (0.019 ± 0.057 versus 0.016 ± 0.064 logMAR, p=0.04), lower proportion of preoperative soft contact lens wearers (40.6% versus 45.5%, p<0.001). In the postoperative dry eye group, a high proportion underwent LASIK (52.4% versus 38.7%, p<0.001), were treated with the Allegreto (as opposed to EX500) (70.4% versus 49.7%, p<0.001), and were treated with a 7.0mm (as opposed to 6.0mm) optic zone (18.9% versus 16.3%, p<0.001). In multivariable analysis, older age (OR 1.01, p<0.001), female gender (OR 1.15, p=0.01), lower preoperative refractive error (OR 1.06, p<0.001), lower preoperative BCVA (OR 2.86, p=0.02), LASIK (OR 1.53, p<0.001) and Allegreto laser treatment (OR 2.89, p<0.001) were associated with postoperative dry eye.

Conclusions: This large database study demonstrates that patients who are of older age, female gender, lower preoperative refractive error lower preoperative BCVA are more likely to develop dry eye disease following keratorefractive surgery. In addition, patients undergoing LASIK treatment and treatment with the Allegreto laser are at greater risk as well.

Refractive Errors Correction in Post-Infectious Corneal Irregularities

Maychuk Nataliay, The S. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia

Purpose: To demonstrate the efficacy, predictability and safety of Transepithelial Topography-guided Photorefractive Keratectomy (TT-PRK) in refractive errors correction in patients with post-infectious corneal irregularities.

Design: Prospective, noncomparative case series.

Material and Methods: Twenty nine eyes of 29 patients with post-infectious stromal corneal scars associated with high surface irregularity were evaluated with Manifest spectacle refraction, best spectacle-corrected visual acuity (BSCVA), uncorrected visual acuity (UCVA), corneal density, and topographic indexes of surface regularity before and up to 12 months after TT-PRK performed with excimer laser MicroScan-Visum and KeraScan software (OptoSystems, Russia).

Results: The follow-up period was 12 months. Corneal transparency and corneal topography patterns improved in all eyes. The UCVA improved significantly ($P < 0.001$), from a mean preoperative value of 0.78±0.25 logMAR to a mean postoperative value of 0.23±0.09 logMAR, and the BSCVA improved from 0.36±0.19 logMAR to 0.1±0.07 logMAR ($P<0.001$). No lost lines of BSCVA and increased BSCVA in all eyes were detected (2 lines and more in 90.5% of eyes). The mean spherical equivalent refraction changed from -3.93±3.22 diopters (D) to -0.73±0.92 D ($P<0,001$).

Conclusions: TT-PRK with Russian made excimer laser and software in refractive errors correction in patients with post-infectious corneal irregularities resulted in significant increase of UCVA and BSCVA as well as corneal transparency improving in all patients. The technique seems to be safe and effective for treating of refractive errors in various origin corneal irregularities.

Local Treatment as a Part of the Modern Paradigm of Retinoblastoma Management

Andrey Yarovoy, S.N. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia

All kinds of modern approaches for treatment of retinoblastoma (Rb) are used in Russia. Presently chemotherapy (CT) is recognized as the first line treatment and can be delivered by intravenous, intra-arterial, intravitreal and sub-Tenon routes. In some cases of Rb systemic CT can be avoided. Local treatment options, such as laser, cryotherapy and brachytherapy, help in management of eyes with Rb previously inadequately treated with CT. Ten-year experience of S.N. Fyodorov Eye Microsurgery Federal State Institution, Moscow, bases on management of 129 patients (175 eyes) with Rb will be presented. Some novel modifications of focal therapies have been introduced in our practice, including step-by-step laser thermotherapy of resistant juxtapapillar or paramacular tumors, intra vitreous CT (melphalan injections alone or in combination with topotecan) simultaneously with focal therapies, different approaches to brachytherapy - simultaneous or consecutive irradiation of multiple (up to 4-5) tumors. Results of Ru-106 and Sr-90 brachytherapy have been compared. Single fraction Gamma-Knife radiosurgery has been introduced three years ago as a salvage focal treatment for resistant and recurrent Rb as an alternative approach to enucleation in selective cases. Intraocular surgery with melphalan irrigation can be reserved for very selective cases of vitreous hemorrhage and suspicion for viable Rb and have been successfully fulfilled in 3 cases. Ninety five percent of eyes were retained. Complete or partial regression was achieved in 96% of tumors after brachytherapy, in 88% of tumors after thermotherapy, in 96% after cryotherapy. There were no cases of metastases. Secondary malignancy (esthesioneuroblastoma) caused death in one child.

Small Suspected Choroidal Melanocytic Lesions - Diagnosis and Treatment Approach

Vicktoria (Vicky) Vishnevskia-Dai, Director of Ocular Oncology and Autoimmune Service, Sheba Medical Center, Tel-Hashomer, Israel

Introduction: The diagnosis of undefined small choroidal melanocytic lesions is controversial and difficult. Nevi are frequently found benign lesions while small melanomas are rare and malignant tumors that carry a potential for metastatic spread.

There is no unity in the treatment timing (prompt or deferred) nor the treatment method. Clinical and sonographic risk factors for growth were previously reported by the Shields as : thickness greater than 2 mm, subretinal fluid, symptoms, orange pigment present, margin within 3 mm of the optic disc, ultrasonographic hollowness (versus solid/flat), absence of halo and absence of drusen . These can be memorized using the mnemonic "To Find Small Ocular Melanoma Using Helpful Hints Daily".

The purpose of this presentation is to address the dilemmas of: why to treat, when to treat and how to treat small suspected melanocytic choroidal lesions, and to report of our experience with the treatment of such lesions with Tran pupillary thermo therapy (TTT).

Methods: Review of literature and retrospective consecutive case series report.

Results: In our series 18 patients were treated with TTT. Visual acuity was stable in all patients. Suspected tumor growth was found in 3/18 patients (16%). In all these 3 patients more than 3 risk factors were found prior to treatment.

Conclusions: The diagnosis of undefined small choroidal melanocytic tumors challenging. Basic photographic documentation is warranted. Looking for clinical and sonographic risk factors (To Find Small Ocular Melanoma Using Helpful Hints Daly) is of great assistance. Early treatment should be considered in the presets of 2-3 Risk. TTT may be considered in only selected cases.

Efficacy of 0,05% Cyclosporine Treatment in Cases of Recurrent Erosions of Herpes Viral Origin

Dmitriy Maychuk, Head of Therapeutic Department, S. Fyodorov Eye Microsurgery Federal State Institution, Moscow, Russia

Purpose: To reduce and control the level of inflammation and corneal epithelial edema without use of corticosteroids in cases of herpes viral recurrent erosions.

Methods: Study involved 22 patients with recurrent erosions of herpes viral origin with severe exacerbations occurs more often then once in 4 month. Additionally to regular therapy all patients were receiving courses of 0.01% -0.001% Dexamethazone for 2 month. All patients underwent dry eye tests. BUT test was decreased and severe Lissamine green coloring was found. At the beginning of the study corticosteroid treatment was canceled and 0.05% Cyclosporine (Restasis®) was administered twice a day for 7 month. The follow up period was 1 year with monthly check-up visits.

Results: In 1 year period 4 patients had 1 recurrence of erosion, 3 patients had 2 or more recurrences, 1 patient developed geographic keratitis. In 2 cases there were obvious needs to continue corticosteroid treatment. In 5 cases the administration of Cyclosporine was prolonged over 7 month period because of dry eye complains. Therefore 14 patients (64%) did not have any erosion recurrence and in 12 patients (54%) the effect was stable in 5 month period after Cyclosporin discontinuation. IOP levels decreased to normal figures in all patients.

Conclusions: The use of topical Cyclosporine in cases of herpetic recurrent erosions is effective because of anti-inflammatory effect and reduction of aggressive autoimmune reaction alertness.

Russian - Israeli Meeting

Anti VEGF for Corneal Neovascularization - Update and Personal Experience

Irit Bahar, Head of Ophthalmology Department, Rabin Medical Center, Petach-Tikva, Israel

This lecture will revise ant-VEGF therapy used for the treatment of anterior segment diseases namely corneal neovascularization, primary and recurrent pterygium, and chemical burn in animal models and in clinical settings.

Different substances, application modes and doses will be discussed (topical, subconjunctival, intracorneal) as well as safety, efficacy and complication rate.

Poster Exhibition

01. Secondary Penetrating Keratoplasty Graft Failure Managed by Descemet Membrane Endothelial Keratoplasty (Cornea and Contact Lenses)

Itay Lavy, Denise Wajnsztajn, David Landau, Avi Solomon, Ophthalmology, Hadassah-Hebrew University Medical Center, Israel

Background: Descemet membrane endothelial keratoplasty (DMEK) has already been proven to be a viable solution for for secondary graft failure after penetrating keratoplasty. In this study we want to describe the clinical outcomes, technique modifications (movie) and histopathology of DMEK performed for secondary graft failure after PK.

Methods: A total of 11 eyes from 10 patients in the Netherlands and 3 eyes from 3 patients in israel who underwent DMEK for secondary PK graft failure at a tertiary referral center were included. Best-corrected visual acuity, endothelial cell density, and central pachymetry were evaluated before and at regular time intervals up to 36 months after DMEK and complications were recorded; 1 post mortem cornea was available for light microscopy.

***we include a movie showing difficulties and various technique modifications.**

Results: At their last follow-up visit (on average, 16 months after DMEK), 7 of 11 transplanted corneas in the Netherlands were clear. In the 7 eyes with clear grafts, 5 had a best-corrected visual acuity of ≥20/25 (≥0.8), central pachymetry averaged 535 (±70) µm, and endothelial cell density averaged 1045 (±500) cells/mm. Of the 11 eyes, 4 required rebubbling in the early postoperative phase; 1 eye was left with a small (<1/3) detachment. Light microscopy of the pathology specimen showed complete attachment of the DMEK graft onto the preexisting PK posterior stroma, with interface scarring over DMEK graft folds and underneath the graft area that had initially been detached.

Conclusions: DMEK may be a viable option to manage secondary PK graft failure with acceptable outcomes in many cases. Rebubbling for graft detachment may be anticipated, especially because of preexisting glaucoma conditions (severe decompensation, hypotony, and tubes from glaucoma-draining devices). Graft reattachment may occur through interface scarring.

02. The Effect of Estrogen and Progesterone on Porcine Corneal Biomechanical Properties (Cornea and Contact Lenses)

Ran Matlov Kormas[1], Eyal Walter[1], Arie Marcovich[2,3], Xiaomeng Sui[4], Daniel Wagner[4], Boris Knyazer[1]

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2. Department of Ophthalmology, Kaplan Medical Center, Israel
3. Department of Plant and Environmental Sciences, The Weizmann Institute of Science, Israel
4. Department of Materials and Interfaces, The Weizmann Institute of Science, Israel

Background: Changes in blood levels of estrogen and progesterone contribute to physiological and pathological changes that occurred in patients. Several clinical studies reported that hormonal changes during the menstrual cycle, pregnancy, and menopause are accompanied by corneal changes(corneal thickness(CCT), curvature, and biomechanical strength).

We investigated the effect of the hormones estrogen and progesterone on the biomechanical properties of porcine corneas.

Methods: Thirty fresh porcine corneas were acquired from an abattoir. The corneas were equally divided into three groups. Groups were incubated for one week in Optisol-GS solution containing supra-physiologic concentrations of estrogen, progesterone, or control(no added substance). After the incubation period central corneal thickness of each cornea was measured using an electronic caliper, and corneas were then cut into strips measuring 10mm by 4mm. The strips were clamped between 2 pneumatic jaws of a computer controlled biomaterial tester(Instron 4502) and stretched at a constant rate of 1 mm/min until tissue rupture, while constantly recording the stress and strain of the tissue. Stress-strains curves were plotted and Young`s modulus was calculated for each corneal strip.

Results: Average corneal thickness was 873.5±143.1µm for the control group 928.0±97.7µm for the estrogen group and 922.0±116.7.1µm for the progesterone group. There was no statistically significant difference between the groups(p=0.89). The average Young modulus was 17.00±3.46 MPa for the control group, 16.95±6.83 MPa for the progesterone group and 12.33±3.24 MPa for the estrogen group. There was a statistically significant difference between the control and estrogen groups(p= 0.018), while the difference between control and progesterone groups was non-significant(p=0.72).

Conclusions: Estrogen has a relaxing effect on the porcine cornea, causing a reduced stiffness of the tissue as expressed in a reduced Young`s modulus. Progesterone has no significant effect on the bio-mechanical properties of porcine corneas. As many properties are common between human and porcine corneas, these findings may be applicable to human corneas.

03. A rule of Astigmatism in Pediatric Subluxated Crystalline Lens (Strabismus and Pediatric Ophthalmology)

Ran David, Ori Berger, Hadas Mechoulam, Irene Anteby, Center for Pediatric Ophthalmology, Department of Ophthalmology, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

Background: Crystalline lens subluxation leads to refractive error typically resulting in myopic-shift and astigmatism. Repeated refraction is mandatory. Retinoscopy is challenging due to phaco/iridodonesis and distorted reflex. This study explored simplified rules of thumb to help determining the correct refraction.

Methods: We performed a retrospective study of patients (<19 years old), with dislocated/subluxated lens who underwent lensectomy at Hadassah University Medical Center between 1980-2016. Traumatic cases were excluded. Direction of subluxation, spherical equivalent (SE), astigmatic error and axis were collected before and after lensectomy. In each case, the correlation between the axis of astigmatism and direction of subluxation was evaluated.

Results: Thirty-nine eyes (25 children) were included. The average age was 67.38 (range 10-230) months. The average pre–op astigmatism (3.90D, range 0.75-8.75D) was reduced significantly after lensectomy (0.68D, range 0.5-2D). The average pre–op SE was myopic (-5.93D, range -18.75 - +17D). The direction of subluxation was found to be superiorly, supero-temporally, temporally, infero-temporally, inferiorly, nasally, supero-nasally in 14, 11, 2, 1, 4, 1 and 6 cases, respectively. No infero-nasally subluxations were found. In each direction the pre-op axis of astigmatism was found to be in 93% cases horizontally (between 180-150o and 0-30o) in superior; 82% obliquely (RE:45+30o and LE:135+30o) in supero-temporal; 100% vertically (90+30o) in temporal; 100% obliquely (RE:135+30o and LE:45+30o) in infero-temporal; 100% horizontally (180-150o and 0-30o) in inferior; 100% vertically (90+30o) in nasal; 67% obliquely (RE:45+30o and LE:135+30o) in supero-nasal, subluxations (Figure 1). Totally, 87% of measured axis were inside those expected ranges in all directions.

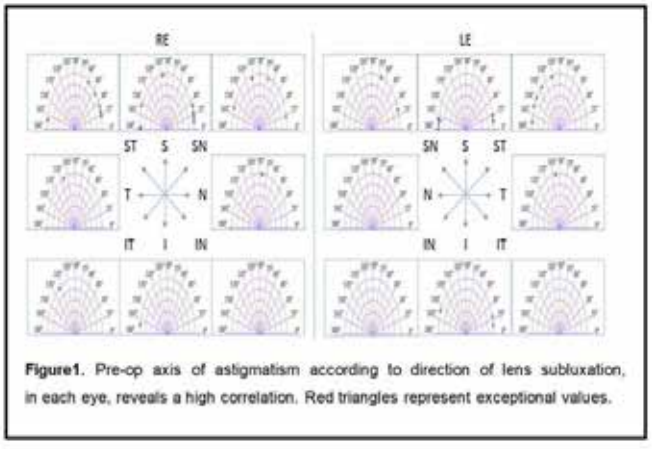

Figure1. Pre-op axis of astigmatism according to direction of lens subluxation, in each eye, reveals a high correlation. Red triangles represent exceptional values.

Conclusion: We found a correlation between the direction of subluxation and the astigmatic axis before surgery for pediatric lens subluxation. We postulate that the high and irregular astigmatism in subluxation is mainly lenticular. As a rule of thumb, the astigmatic axis is expected to be parallel to the direction of suluxation.

04. Association Between Delivery of Small-for-Gestational-Age Neonate and Long-Term Ophthalmic Morbidity (Strabismus and Pediatric Ophthalmology)

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2. Obstetrics and Gynecology, Soroka University Medical Center, Beer-Sheva, Israel
3. Department of Epidemiology and Health Services Evaluation, Soroka University Medical Center, Beer-Sheva, Israel

Background: The main goal of this study is to investigate whether delivery of a small for gestational age (SGA) neonate poses a risk for subsequent long-term ophthalmic morbidity.

Methods: In this population-based study all deliveries between 1991 and 2014 were included. Congenital malformations and multiple gestations were excluded from analysis. Offspring were defined as either SGA (weight below the 5th percentile for gestational age) or non-SGA. Comparison was performed regarding the incidence of long-term ophthalmic morbidity in a cohort of neonates who were born SGA and those who were not. Ophthalmic morbidity was documented during any encounter with the hospital for a period of up to eighteen years after delivery. Ophthalmic morbidity included infections of the eye or the adnexa, inflammation of any cause requiring admission, visual disturbances, and other hospital admissions carrying an ICD-9 code of ophthalmic designation. A Cox proportional hazards model was used to estimate the adjusted hazards ratio (HR) for ophthalmic morbidity During the study period, 238,622 deliveries met the inclusion criteria, of which 10,711 (0.4%) were defined as SGA.

Results: During the follow-up period, SGA neonates had higher rates of ophthalmic-related hospitalizations (1.2% versus 1.0%; OR=1.23, 95% CI 1.02–1.47; p=0.027). In a Cox proportional hazards model, adjusted for confounders such as maternal age, gestational age at delivery, gestational diabetes, and maternal hypertensive disorders, SGA neonate was independently associated with subsequent long-term ophthalmic morbidity (adjusted HR=1.28; 95% CI 1.02–1.47; p=0.026).Conclusion: Delivery of an SGA neonate is an independent risk factor for long-term ophthalmic morbidity.

Conclusion: Delivery of an SGA neonate is an independent risk factor for long-term ophthalmic morbidity.

05. The Role of Evisceration as a Long Term Treatment of Ocular Pain due to Blind Painful Eye (Oculoplastics)

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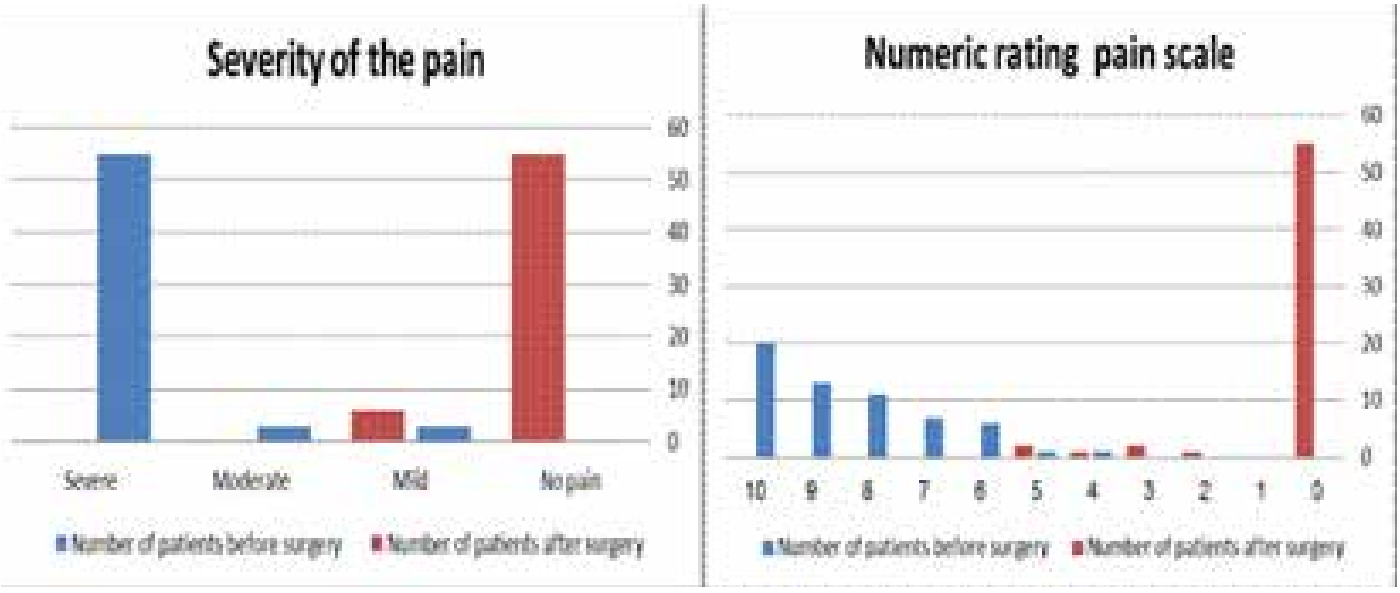
2. Ophthalmology, Bnai Zion Medical Center, Haifa, Israel
3. Ophthalmology, Rambam Medical Center, Haifa, Israel

Background: Limited treatment options are available for patients suffering from a blind painful eye (BPE). Enucleation and evisceration are the two most common surgical solutions for BPE. The literature is inconclusive as to whether evisceration is as efficient as enucleation in the treatment of BPE. Phantom Eye syndrome (PES) which includes visual hallucinations is very common after enucleation and exenteration, yet to our knowledge was rarely reported after evisceration. Aims: To study the pain relieving effect of evisceration in BPE and to describe the rate of post evisceration PES.

Methods: Charts of patients who underwent evisceration for the treatment of BPE between 1999-2013 were retrospectively reviewed. Data extracted included: demographic details, presumed cause of BPE, prior therapies and details regarding the evisceration procedure. In order to determine the long term effect of the procedure, a telephone survey was conducted utilizing a modified pain description questionnaire (McGil).



Results: 73 patients were included in the study. Their average age was 60.5 years and 31 (42%) of them had previous ocular trauma (table 1). 32 of the procedures included a primary implant. Questionnaires were available for 61 patients, of which 90% reported being pain free after the evisceration (figure1). 6 patients reported some residual pain but it was significantly less severe. The presence of an implant was correlated with persistent pain after evisceration (p=0.042) and implant exposure raised the risk of persistent pain even more. Only one patient (1.6%) reported visual symptoms of PES.

Conclusions: Evisceration is an effective surgical treatment for BPE. Trauma is the leading cause for BPE. Orbital implants may have a role in cases of persistent pain after evisceration. PES after evisceration is significantly lower than expected.

Table 1. Patients' Details	The study group distribution	
	N	%
Cause of BPE		
Trauma	31	42.45
Infection	20	28.76
Congenital	7	10.95
Other	15	20.54
Implant insertion		
Yes	39	53.42
Primary	32	43.84
Secondary	7	9.58
No	34	46.58
Follow-up preceding the evisceration		
0-1 year	30	41.1
1-3 years	17	23.29
3 years +	26	35.61

06. Endoscopic Dacryocystorhinostomy With or Without Submucus Resection of the Septum - Surgical Indications, Results and Complications (Oculoplastics)

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2. Otorhinolaryngology department, Sheba Medical Center, Tel-Hashomer, Israel

Background: To examine the differences in clinical presentation, risk factors surgical methods and prognosis in patients that underwent edoscopic dacryocystorhinostomy (EDCR) with or without submucus resection of the septum (SMR).

Methods: Medical record review of all patients that underwent EDCR in Sheba Medical Center during 2012-August 2017 was performed.

Results: One hundred twenty four patients underwent EDCR (91 females, mean age 33 years; range 4-90 years). Twenty five patients underwent EDCR+ SMR. Smoking and nasal abnormalities noticeable prior to surgery were associated with the combined surgery of EDCR+ SMR (p=0.0043, 0.0008, respectively, Chi sq). Moreover, there was a trend that patients who underwent previous endoscopic DCR were associated more with re-DCR with SMR, though this trend was not statistically significant (p=0.08, Chi sq). In all cases a silicone tube was inserted for a period of time of 10.33 days in the SMR group and 9.2 days in the non SMR group (t-test, p=0.543). There were no differences in anatomic failure and complications rate after the surgery between the two groups (p=0.752, p=0.806, respectively, Chi sq). However the SMR group was referred to re-surgery more than the non SMR group (36.36% vs 10.53%, p=0.0267).

Conclusions: Most of the patients with epiphora needed EDCR only. However, patients with abnormities of the nose seen prior to surgery or smoking patients were at risk of undergoing DCR with SMR. When an SMR is needed it is important to know in advance in order to combine the surgery with an ENT surgeon. Therefore, it may be recommended that each patient will undergo an endoscopic evaluation beforehand. Moreover, it may be necessary to inform patients undergoing DCR with SMR that they have 3 times more chance of needing a second surgery.

07. Multimodal Imaging Analysis of Focal Choroidal Excavations (Retina)

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1. Center for Retinal and Macular Degenerations, Hadassah-Hebrew University Medical Center, Jerusalem, Israel
2. Ophthalmology, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

Background: Focal Choroidal Excavations (FCEs), a rare clinical entity, can appear either as a solitary finding or be associated with a more common clinical entity, such as Central Serous Choroidoretinopathy (CSCR). Here we describe a case series of six patients diagnosed having a focal choroidal excavation at Hadassah Retina Service.

Methods: Retrospective case series. All patients underwent Ocular Coherence Tomography (OCT), Near Infrared Imaging Autoflourescence (NIA), Fundus Autoflourescence (FAF) and pseudocolor images. We performed retinal angiography, either OCT or Fluorescein angiography, for patients suspected to demonstrate a choroidal neovascularization (CNV).

Results: 6 patients, ages 30-53, two females, presented to Hadassah Ophthalmology Clinic during the years 2014-2017. Out of the six patients, one was associated with CSCR, 4 were associated with high myopia and 3 with CNV with one myopic patient developing a CNV. Notably, different image modalities yielded complimentary information. NIA was found to better delineate the lesion borders in their entirety, as compared to other modalities. FAF demonstrated a hypoflourescent focus corresponding to the location of the excavation and FA demonstrated a hyperflourescence compatible with a transmission (window) defect with a surrounding hypoflourescent halo. CNV membranes were well delineated by either FA or OCTA.

Conclusion: FCE is a rare diagnosis underlined by an incompletely understood pathophysiological process. Each imaging modality used in this study contributed information delineating different aspects of the FCEs. A multimodal approach to FCEs is thus warranted and may further our understanding of the pathophysiology of this intriguing clinical entity.

08. Safety of Bevacizumab Ocular Injections for AMD in Patients After a Cerebrovascular Event (Retina)

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Purpose: To analyze to the mortality associated with intravitreal injections of bevacizumab for AMD in patients previously diagnosed with stroke or TIA.

Methods: We reviewed bevacizumab-treated AMD patients with a diagnosis of stroke or TIA prior to their first bevacizumab injection (n=948). Those patients, naïve to any anti-VEGF at the time of stroke/TIA, were then compared to age and gender-matched patients who had a stroke/TIA at the same time and had never been exposed to anti-VEGF. Survival analysis was performed using adjusted Cox regression. The main outcome measure was survival. Adjusted variables were age, smoking, alcohol abuse, hypertension, diabetes mellitus, obesity, ischemic heart disease, congestive heart failure and liver cancer.

Results: Age and gender distribution of bevacizumab-treated patients and controls were similar (mean age: 83.4 vs 83.7 year, P=0.3; 51.7% males vs 52.5%, P=0.7). The adjusted mortality in patients who received bevacizumab within 3 months after stroke/TIA was significantly different than in patients non-exposed to bevacizumab (OR= 6.92, 95%, C.I 1.88 – 25.43, P < .01). Within 6 months after stroke/TIA, the difference in adjusted mortality showed a strong trend (OR=2.00, 95%, C.I 0.96 – 4.16, P = .064). Within 12 months, it was insignificant (OR=1.30, 95%, C.I 0.75 – 2.26, P = .348).

Conclusions: We found increased mortality within three months after a cerebrovascular event in patients treated with bevacizumab for AMD compared to patients for whom there was no record of a prescription to any anti-VEGF agent.

09. Is Demodex Blepharitis More Frequent With Steroid Therapy? (Cataract)

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Aim: Is there an increase in demodex blepharitis amongst patients who receive steroid drops after cataract extraction surgery?

Methods: This prospective study included patients who underwent cataract extraction surgery in 2015-2016 at Emek Medical Center in Israel. An eyelash was removed and examined under a microscope for the presence of the Demodex mite. The patient's eyelashes were removed before surgery and three weeks post-surgery. During those post-operative weeks, patients received the standard treatment which included steroid drops.

Results: Sixty two participants were included in the study, of which, 31 were men and 31 women. The mean age was 71.04 (range 47 to 87). The presence of Demodex before steroid exposure and after was 22.58% and 32.26% respectively (P = 0.0143). The average age group without Demodex compared to the group with Demodex was 68.8± 8.9 and 75.7±6.6, respectively (p = 0.0036). In the group positive for Demodex, the male to Female ratio was 2: 3 (P = 0.2772).

Conclusion: Exposure to topical steroids significantly increases the incidence of Demodex blepharitis.

10. Prevalence of Astigatism Before Routine Cataract Surgery: Comparison Between Bedouin and Jewish Population in Southern Israel (Cataract)

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Objective: Assessing prevalence of corneal astigmatism among patients before routine cataract surgery and overall ocular difference between Jewish and Bedouin population in the south of Israel.

Methods: Retrospective research collecting Biometric information from IOLMaster (Carl Zeiss Meditec AG, Germany) in patients attending cataract surgery at Soroka University Medical Center, Beer-Sheva, Israel between the years 2015 -2016.

Results: Mean corneal astigmatism among all cohort was 1.20D ± 0.83, with 1.26D ± 0.84 in Bedouins patients vs 1.17D ± 0.82 in Jews patients (p-value=0.08).

Corneal astigmatism lower than 0.5D was seen in 20% of the population, 28% of the population had corneal astigmatism above 1.5D and 9% showed corneal astigmatism higher than 2.5D.

When comparing axial length and keratometric characteristics between the two populations, Bedouins had shorter axial length (23.41mm± 1.62 vs. 23.67mm ± 1.55, p=0.01), and flatter corneas on both axis (flat - 43.18D ± 1.76 vs. 43.62D ± 1.79, p0.01); (steep - 44.44D ± 1.84 vs. 44.77D± 1.89, p0.01).

Higher astigmatism was found in man than in woman (1.24D vs.1.15D p- value=0.04) of study group.

Conclusions: In our study we found more than a quarter of the patient's astigmatism more than 1.5D. Patients attending cataract surgery may therefore benefit the use of advanced IOL types and surgical techniques. In addition a statistically significant difference between the Bedouin and Jewish populations biometric measurements in patients attending cataract surgery were found.

11. Post Femtosecond Assisted LASIK Ectasia in a Hyperopic Eye (Refractive Surgery)

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Background: We report on a case of post-femtosecond assisted LASIK (FA-LASIK) corneal ectasia, a postoperative complication characterized by progressive steepening and thinning of the cornea. Most reports in literature observed mainly myopic eyes and only a few cases of corneal ectasia after hyperopic LASIK have been described before. To the best of our knowledge, this is the first report on post FA -LASIK ectasia in a hyperopic eye.

Methods: A case report of a healthy 23-year-old hyperopic male who underwent FA-LASIK in both eyes and eighteen month later an enhancement procedure in his left eye (LE) due to residual hyperopia. Ten years later the patient complained about deterioration of his visual acuity in his LE.

An examination of the eyes and imaging of the cornea revealed post LASIK ectasia in his LE.

Results: Patient best-corrected spectacle visual acuity before surgery, was 6/6 in his right eye and 6/7.5 partial in the left eye. His cycloplegic refraction was +6.00 -1.75x145° in the right and +6.25 -0.50x40° in the left eye. Corneal topography demonstrated mild skew deviation in the left eye.

The patient was operated in both eyes; Sixteen-months post-surgery, a residual hyperopia of +2.50 -1.50x175° was measured in the left eye. Due to patient dissatisfaction with VA in the left eye, an enhancement procedure was done. Post-operative VA was 6/12+. Ten years later the patient complained about deterioration of his VA in his LE, UCVA was measured 6/120 and BCVA of 6/15p with cycloplegic refraction of +0.25 -5.25x145 in his left eye. Placido topography showed increased inferior corneal steepening with pronounced skewing of the radial axis.

Conclusion: Although rare, post LASIK ectasia may occur post FA- LASIK in hyperopic eyes. to the best of our knowledge this is the first report on post FA -LASIK ectasia in a hyperopic eye.

12. Long-term Follow-Up of Intrastromal Corneal Ring Segments for Corneal Ectasia (Refractive Surgery)

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Background: Intrastromal corneal ring segments (ICRS) have been shown to improve vision in eyes with postLASIK ectasia, especially those that have lost CDVA. The long-term effects of ICRS on ectasia have not been well studied. Therefore we undertook this study to describe the long-term visual outcome after implantation of ICRS in eyes with ectasia after myopic LASIK.

Methods: This retrospective, noncomparative, interventional, consecutive case series studied 5 eyes of 5 patients with postLASIK corneal ectasia from 3 refractive laser centers treated with ICRS. The UDVA, CDVA, manifest refraction, keratometry, videokeratography, and inferior–superior asymmetry were assessed before, 9 months after, and 10 or more years after ICRS implantation.

Results: ICRS implantation was performed 17 to 32 months postLASIK. Nine months postimplantation, UDVA improved 8, 4, 3, 0.5, and 5 lines and CDVA, 2, 2.5, 1, 0.5, and 2 lines. Mean manifest spherical equivalent improved from −1.60 ± 1.67 (SD) to −0.80 ± 1.05 D. Mean manifest astigmatic correction decreased from −3.9 ± 2.96 to −2.46 ± 2.77 D. Corneal topography showed improved inferior steepening and less irregular astigmatism. Regarding long-term follow-up, 1 eye had a myopic spherical shift of 4.25 D and underwent penetrating keratoplasty 3 years after ICRS implantation. The other 4 eyes, after 10 or more years postICRS implantation, had no additional surgery, and showed UDVA decrease of 1 to 2 lines, stable CDVA, and stable astigmatism in 2 eyes and a 1.25 D increase in 2 eyes.

Conclusions: Eyes with postLASIK ectasia treated with ICRS implantation may have significantly improved vision in the short-term and stable vision in the long-term. Appropriate patient selection is important and further study will elucidate the parameters predictive of ICRS success in postLASIK corneal ectasia.

13. Objective Diagnosis and Assessment of Visual Field Defects in Glaucoma Patients Using Chromatic Pupilloperimetry (Glaucoma)

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Background: Evaluation of visual field (VF) is important for glaucoma diagnosis and patient monitoring. The aim of the presented study was to objectively assess visual field defects in glaucoma patients using chromatic multifocal pupilloperimetry.

Methods: Eleven glaucoma patients (5 females and 6 males, age: 73.9±9.7, mean± SD) and twelve healthy age-matched controls were enrolled (7 females and 7 males age: 66.6±4.2 mean). Pupil response to focal blue and red light stimuli (peak 485 and 624 nm, respectively) presented at 54 targets in a 24-2 visual field were recorded. The pupil responses of patients were compared to the pupil response of controls and were correlated with patients' Humphrey 24-2 perimetry.

Results: Significantly lower percentage of pupil contraction (PPC) and maximal relaxation velocity (MRV) were recorded in glaucoma patients in response to blue light in visual field locations that were abnormal by Humphrey perimetry. A milder defect was recorded in response to red light stimuli. Glaucoma patients demonstrated significantly lower absolute deviation in PPC and maximal relaxation deceleration in response to blue light, and in MRV in response to red light compared with controls (all $p<0.01$).

Conclusions: This study demonstrates the potential feasibility of using pupillometer-based chromatic perimetry for objective assessment of visual field defects in glaucoma patients. In glaucoma, the pupil response to blue light and pupil response parameters PPC and MRV were most affected, but the latency of the pupil response was normal. These findings suggest that analysis of different parameters of pupil response to chromatic light may differentiate between optic nerve and retinal pathologies.

14. NPDS Versus Combined Phaco-NPDS in Glaucoma Treatment: 3 Years Follow-Up (Glaucoma)

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Purpose: To analyze the short and long-term profile of Non-Penetrating Deep Sclerectomy as a standalone and as a combined procedure.

Design: Retrospective, cross sectional, descriptive study.

Participants: 293 eyes of patients who underwent NPDS in the Glaucoma Unit of the Ophthalmology Department at the Hadassah-Hebrew University Hospital at the time period of 2013-2017

Methods: Retrospective, clinic-based chart review and analysis of demographics, clinical features, ancillary tests (OCT and Eye Ultrasound), intraoperative events, short and long-term outcome and complications, as well as additional procedures required on patients who underwent this procedure.

Results and conclusions: Out of the 293 eyes analyzed in the study, 135 underwent NPDS while 158 underwent a Phacoemulsification and NPDS. Mean age was 73.95 and 70.48 years, respectively. In the standalone arm, mean IOP before the procedure was 26.11 mmHg and number of medications were 3.6, while after the procedure the IOP remained below 12 mmHg, with a mean number of medications of 0.25 in a follow up of up to 4 years. On the other hand, in the combined arm, the IOP before the procedure was 24.88 mmHg and number of medications were 3.14, while after the procedure the IOP remained below 14 mmHg and the mean number of medications were 0.18 in the same follow up period.

15. Orbital Lymphoma - to Treat With Mabthera or Radiotherapy? (Ocular Oncology)

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Background: Lymphomas of the orbit and orbital adnexa are the most common orbital tumor in older adult population, comprising 1% of all non-Hodgkin's lymphoma. While some of the treatment modalities are common, there is currently no preferred first line therapy.Our purpose To compare the effectiveness of biological, radiation and combined treatment for orbital lymphoma.

Methods: The cohort included all patients with orbital lymphoma attending two medical centers during 2007-2016. The medical records were reviewed for demographic parameters, complete eye exam, hematological evaluation, systemic involvement, imaging studies, treatment modality, side effects, follow-up, and outcome.

Results: 22 cases of orbital lymphoma were investigated. The patients were diagnosed and treated in two different medical centers. The patients were treated with local radiation (9), Mabthera (7), combination of Mabthera and local radiation (2) or not treated at all (4). 15 out of the 22 patients appeared with proptosis before the diagnosis. Most patients (15) had local disease while the others (7) had systemic disease. Relapse of local orbital lymphoma had been detected in 3/4 treated by Mabthera alone. None of the 8 patients who were treated with local radiation had experienced recurrence of the disease at the same eye.

Conclusions: Patients treated with Rituximab alone had a significant increased rate of recurrences as compare to radiation or combined therapy. Although proptosis was the leading presenting sign, delay in diagnosis was common.

16. Non-Neovascular Subretinal Fluid Secondary to Choroidal Osteoma Controlled With Rescue Therapy of Intravitreal Afilbercept (Ocular Oncology)

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Background: Choroidal osteoma is a benign ossifying tumor that is more prevalent among young individuals. Visual impairment is thought to be the result of several pathological mechanisms, including subretinal fluid accumulation and occasionally choroidal neovascularization(CNV)[1].

Methods: Case report and review of literature.

Results: We describe a young-adult man who presented with unilateral visual impairment due to choroidal osteoma. Subretinal fluid (SRF) was evident without choroidal neovascularization (CNV). The SRF was resistant to bevacizumab intravitreal injections, however, showed marked response to afilbercept. He received monthly afilbercept injections, and thereafter a 6-month interval schedule with stable recovery of vision and fluid absorption. To date, no consensus exists regarding the optimal treatment strategy for choroidal osteoma. Given its rarity, there is scarcity of publications regarding treatment options for choroidal osteoma without CNV. Previous research regarding the use of afilbercept has been restricted to choroidal osteoma associated with CNV[2]. Apart from its crucial participation in the angiogenesis cascade, VEGF also plays an important role in fluid accumulation as it possess permeability enhancing characteristics[3]. It is possible to speculate that the improved VEGF-affinity of afilbercept is responsible of the encouraging response in abolishing SRF in choroidal osteoma.

Conclusion: To the best of our knowledge, the current report is the first to describe a case of choroidal osteoma without CNV, who failed to respond to bevacizumab, nevertheless was successfully treated with aflibercept. Our experience provide support for the use of afilbercept in the treatment of non-neovascular choroidal osteoma.

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17. Buzzing the Sympathetic Nerves: A New Diagnostic Test to Enhance Reflex Pupil Dilation in Suspected Horner Syndrome (Neuro-ophthalmology)

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Background: Patients with suspected Horner syndrome and equivocal pupil dilation lag and pharmacologic testing might undergo unnecessary MR imaging. Our purpose was to increase the diagnostic sensitivity of pupillography by accentuating sympathetic innervation to the iris dilator by surface electrical stimulation of the median nerve using a standard electromyography machine. We hypothesized that any difference in sympathetic innervation to the right and left eye would be accentuated.

Methods: **10 healthy volunteers tested before and after monocular instillation of brimonidine 0.2%** to induce pharmacological Horner's syndrome were compared to 10 patients with proven Horner's syndrome. Pupillary responses were measured with binocular pupillometry (DP-2000, Neuroptics; Irvine, CA) in response to sympathetic activation by electrical stimulation (0.2ms, 50mA) of the median nerve in darkness and at various times after extinction of a 3log lux light stimulus (1 vs. 4 seconds). Sudomotor sympathetic responses from the palm were recorded simultaneously.

Results: In subjects with Horner syndrome or pharmacologically induced unilateral sympathetic deficit, electrical stimulation in combination with the extinction of light greatly enhanced the anisocoria during the evoked pupil dilation and was well tolerated. The asymmetric sympathetic response was greatest when the electrical stimulus was given 1-2s after termination of the light. Two discernible reflex dilation responses appeared; an initial symmetric dilation due to central inhibition of the Edinger-Westphal nucleus followed by a very accentuated asymmetric dilation due to enhanced peripheral sympathetic stimulation.

Conclusion: Electrical sympathetic stimulation given at the termination of a short light stimulus appears to greatly enhance the sensitivity for diagnosing asymmetric pupil dilation due to Horner syndrome. This strategy may improve upon the ability to rule in or rule out a unilateral oculosympathetic deficit, especially if the results of topical pharmacological testing are inconclusive.

18. Bilateral Posterior Ischemic Optic Neuropathy (PION) as a Presenting Symptom of Churg Strauss Syndrome (Neuro-ophthalmology)

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Background: Churg Strauss is a rare disease with rare ocular manifestations. We report a patient with simultaneous bilateral posterior ischemic optic neuropathy, who was subsequently diagnosed with Churg-Strauss syndrome.

Methods: A 71- year-old man presented to our emergency department with a complaint on sudden vision loss in his left eye two days earlier. Ocular history included an attack of acute angle closure glaucoma in his left eye 10 years prior. He was treated with LI in both eyes and did not use any eye drops. His past medical history included 20-year history of asthma and eosinophilia, chronic sinusitis and FESS surgery two years prior. He suffered from constitutional symptoms: decreased appetite, general weakness, and jaw claudication.

Results: On presentation visual acuity in the right eye was 6/6 and NLP in left eye. Both optic nerves were mildly hyperemic and swollen. RNFL thickness by OCT was mildly elevated in both eyes. Laboratory tests showed markedly elevated inflammatory markers: leukocytosis of 30K, 70% eosinophilia with abnormally high CRP and myeloperoxidase. Patient was put immediately on high dose IV methylprednisolone, 1 gr/d and a temporal artery biopsy followed one day later, which revealed small vessel vasculitis. Therapy improved his general condition and normalized the blood tests but no visual recovery occurred. During the following weeks he developed optic atrophy, more in the left side. Visual field of his right eye showed upper altitudinal defect.

Conclusion: Posterior Ischemic Optic Neuropathy can be a presenting sign of potentially life threatening disease. Systemic vasculitis should always be considered in the appropriate setting in order to preserve vision and avoid mort

19. Atypical Posterior Segment Manifestations in Patients With Tubulointerstitial Nephritis And Uveitis (Uveitis)

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Background: Tubulointerstitial nephritis and uveitis (TINU) was first described in 1975. TINU syndrome typically presents as acute interstitial nephritis and bilateral anterior uveitis. Posterior segment manifestations are less common and mainly include vitritis or retinal vascular involvement.

Methods: case reports of two patients with atypical posterior segment manifestations.

Results: Patient no 1, a 12 y/o boy, was hospitalized due to abdominal pain, fever and disrupted renal functions. Renal biopsy showed tubulointerstitial nephritis with no granulomata. Systemic work up was negative, including ACE and CXR.

Ocular examination showed bilateral anterior uveitis with normal posterior segment. He was treated with prednisone with gradual tapering. During the tapering process repeat ocular examination revealed bilateral multifocal choroiditis which responded to high dose prednisone. However, repeat taperng of prednisone resulted in a flare up of the choroidal lesions. Methotrexate was added but was eventually stopped due to GI adverse effects and substituted by azathioprine.

Patient no 2, an 11 y/o girl was diagnosed by biopsy as suffering from Tubulointerstitial nephritis. Shortly after, she was found to have bilateral anterior uveitis.

She was treated with systemic steroids and steroid drops with good response. Azathioprine was added due to flare up of the renal disease. 30 months later, while on treatment with Azathiopine and pred forteX2/d she presented with mild decrease in vision in the LE, no active anterior uveitis or virtritis but with a swollen disc and hemimacular star appearance. OCT showed mild subretinal fluid around the optic disc and in the nasal part of the macula with no macular edema.Serology for Bartonela came back negative. Management was not changed due to the good vision and no macular edema. The neuroretinitis resolved by 4 months.

Conclusions: Various posterior segment manifestations, including multifocal choroiditis and neuroretinitis, may occur in TINU syndrome.

20. Neuroretinitis as a Unique Presentation of Behçet's Disease in a Child (Uveitis)

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Purpose: To describe a unique case of Behçet's disease (BD) in a child that presented with neuroretinitis.

Observations: A 4.5 years old girl presented to our department with fever of 39.50c, limp, arthralgia in both knees and oral and genital aphthae. Right eye (RE) exam was normal and on the left eye (LE), cells+1 in the anterior chamber (AC) with mild vitritis and macular star, without retinitis, vasculitis or choroiditis. One month after initial presentation the patient presented with BCVA of finger counting in the LE. The LE presented with significant anterior uveitis, mild vitritis and neuroretinitis. Two weeks later, retinochoroidal lesions were noticed in both eyes. Laboratory workout demonstrated leukocytosis, elevated CRP of 89 mg/L and ESR 84, normal levels of C3, C4, ASLO and ACE, negative ANA, ANCA and Bartonella henselae IgM and IgG. According to international criteria of Behçet's disease the patient was diagnosed with BD. Treatment included systemic steroids, colchicine, Imuran and infliximab.

In four years of follow-up the patient demonstrated complete resolution of all systemic findings and improvement in visual acuity to 6/6.5 in both eyes, with very mild LE vitritis and a single raised scarred lesion near the fovea.

Conclusion: This is the first described case of neuroretinitis presenting as a manifestation of pediatric Behcet`s disease. Ophthalmologists should be aware of this unique manifestation.

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